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REPORTS  
OF  
COMMISSION

*Appointed to Inquire Into*

HYDRO-ELECTRIC  
RAILWAYS

CONTAINING  
MAJORITY AND MINORITY  
REPORTS  
AND APPENDICES

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PRINTED BY ORDER OF  
THE LEGISLATIVE ASSEMBLY OF ONTARIO

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TORONTO:

Printed by CLARKSON W. JAMES, Printer to the King's Most Excellent Majesty

1921







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# MAJORITY REPORT

TO HIS HONOUR, LIONEL HERBERT CLARKE, ESQUIRE,  
*Lieutenant-Governor of the Province of Ontario.*

*May it please your Honour:*

The Commissioners appointed under *Order-in-Council* bearing date the 21st day of July, 1920, respectfully beg to report as follows:

We were, by said *Order-in-Council*, directed:

(1) "To inquire into and report upon the whole question of Hydro Electric Railways, and all matters which, in the opinion of the Commissioners are relevant thereto, with particular reference to the matters that are raised by and discussed in the statement of the Government issued on the 6th day of July, 1920," a copy of which was attached to the *Order-in-Council*, and

(2) "To make such suggestions and recommendations in connection with or arising out of any of the subjects thus indicated, as in the opinion of the Commission may be desirable."

While the main inquiry is as to the proposed construction by the Hydro Electric Power Commission of Ontario, (on behalf of certain municipalities interested therein) of a system of electric (or radial) railways, through a part of Ontario extending, roughly, from Bowmanville on the east to Niagara Falls on the west, with a route mileage of about 326 miles, at an estimated cost of approximately \$45,000,000 *other matters were raised* in the Government statement, and submitted to us for inquiry and consideration and which, it is appropriate to at once and briefly refer to as follows:

## MATTERS RAISED BY AND DISCUSSED IN THE GOVERNMENT STATEMENT

(1) The existing condition and outlook of the electric railway business.

(2) Will the projected railways be self-supporting, if constructed?

(3) (a) To what extent, if any, has the acquisition of the Canadian National Railway System, since the project was presented to the municipalities, affected the consideration thereof? (b) What weight should be attached to the suggestion that the Province "must not come into competition with Canadian National Railways?"

(4) To what extent, if any, has the large expenditure on the Chippawa Power scheme, since the project was so presented to the Municipalities, affected the consideration thereof?

(5) To what extent, if any, has the adoption by the Provincial Government of an improved highways policy, since the project was so presented to the Municipalities, affected the consideration thereof?

(6) To what extent will motors and motor trucks operating on improved highways, compete with and affect the projected railways?

(7) The existing debt and obligations of the Province in relation to the project.

(8) The relation, as well, of national and municipal debts thereto.

(9) The fact that the construction and operation of electric railways is something separate from the main object of the Hydro Electric Power Commission of Ontario, namely the development and sale of power.

(10) Are the projected railways to be regarded as a public necessity?

We have inquired into all of these questions, and from the evidence and documents, reached certain conclusions which we shall first state, leaving their discussion to be dealt with in our reasons, which follow later.

## FINDINGS

(1) The financial condition of electric railways in Ontario and the United States in and prior to 1920, has been so precarious and unsatisfactory, and the outlook for improvement so dubious and discouraging, that the construction of the proposed system of electric



railways should not, in our judgment, be entered upon unless the evidence of competent operating experts fully justifies the conclusion that they will be self-supporting.

(2) Upon full consideration of the evidence, and the proper weight to be given to the witnesses, we are of opinion that the proposed electric railways would not be self-supporting.

(3) We are further of opinion that the construction of the proposed electric railways paralleling and competing as they would with the Canadian National Railway System, would be unwise and economically unsound, and would strike a serious blow at the success of Government Ownership.

(4) We are further of opinion that until the Chippawa Power scheme, now estimated to cost \$60,000,000 or upwards is completed, and has been in operation for sufficient length of time to be self-supporting, the Province would not be justified in endorsing for the construction of an electric railway system at an initial estimated cost of \$45,000,000.

(5) We are further of opinion that the endorsement by the Province of bonds of the Hydro Electric Power Commission for systems of electric railways in various parts of the Province, at the instance of the municipalities concerned, is highly dangerous and may lead the Province into great financial difficulties. The endorsement for one locality would give rise to demands for the like accommodation for other localities, which it will be hard for any Government to refuse, and might result in the Province being drawn into serious financial liabilities, and we would therefore suggest that Government endorsement of such bonds should be discontinued. To the risk involved in accommodation endorsements, it is no answer to say that they are mere matters of form involving no real liability. Individual and corporate experience is to the contrary.

(6) Further, we are of opinion that the expenditure of \$25,000,000 on improvement of public highways in the Province having been begun, it would be unwise to commence the construction of the electric railways in question until the effect in the improvement of these highways has been ascertained, and the use of them by motor cars and motor trucks (whose competition with electric railways has been found so keen and difficult to meet elsewhere) made clearly apparent.

(7) We are further of opinion that the rapidly increasing debts and financial commitments of the Dominion, Province and Municipalities have aroused well-founded apprehension in the minds of thoughtful citizens, and are a cogent reason against the embarkation at this time in the construction of the contemplated electric railways.

THERE ARE, IN ADDITION, SOME GENERAL MATTERS which it may be well to refer to, and deal with, before coming to the main reasons of our report.

1. It is to be observed that we have, under consideration,

(a) A plan or system of electric (or radial) railways, with original and supplemental estimates prepared by the Hydro Electric Power Commission of Ontario for the municipalities interested, and as to which we have already indicated our conclusions and findings,

(b) A plan of Bion Arnold with substantial changes from the first, and estimates framed in connection therewith, as to which we intend our findings to equally apply.

(c) It has been suggested that if either of or both these proposed schemes were found to be financially unfeasible, some different or modified scheme of construction in the territory might be deduced from the evidence.

We shall make reference to this later, under the head of "Alternative Suggestions."

2. We had expected to complete our inquiry and make our report much earlier. We think it only fair to say that a considerable part of the delay, and much addition to the total expense, were occasioned by the course pursued by the Hydro Electric Power Commission of Ontario, and the Municipal Hydro Electric Railway Association, in connection with the investigation. We have prepared a statement setting forth in some detail the progress of the proceedings, by which we think this will be made apparent. (*Appendix 2*).

3. The Hydro Electric Power Commission of Ontario made a fundamental error when preparing the original estimates, and it was repeated when the supplementary estimates were prepared, in not seeking and securing the assistance of experienced operating men, at all events insofar as operating costs and possible revenues were concerned.



4. This Radial Railway Inquiry was not one in any sense directed to the administration of Hydro power operations by the Commission in charge thereof. We are of opinion that the development and sale of power is an essential public utility that rightly tends to monopoly. We share the view that there has been a good measure of success under the Hydro Electric Power Commission in this regard and that much credit should properly be given to the Commissioners and to the officials, particularly to Mr. Gaby.

5. Admittedly electric railways are of great utility to the people and serve them in a very close and intimate way. The business of electric railway operation is largely a local one and very competitive, different in many respects from that of power supply. While the railway system proposed would be a convenience and of considerable utility and advantage for transportation within the territory, we consider it questionable whether it can, under all existing circumstances, be properly called an essential public utility of real necessity.

6. One of the things that attracted our attention was the apparent inequalities in the division or apportionment among the municipalities of the capital cost in connection with the proposed system of electric railways. The large amount allotted to some of the townships which had a comparatively small population to be served and benefitted, seemed difficult of explanation. This could not well be fully examined into. To the extent that it could, the result is shown in appendix 5, prepared by Price, Waterhouse & Company for us and dealing with the amounts inserted in the by-laws so far as submitted.

7. (a) The net debt of the Dominion of Canada increased from \$333,996,850.14 in 1914 to \$2,248,868,623.79 in 1920.

(b) The debt of the Province of Ontario increased from \$50,052,876.57 (direct \$40,405,535.96, indirect \$9,647,340.61) in 1914 to \$159,752,053.73 (direct \$128,191,754.16, indirect \$31,560,299.57) in 1920. At June 15th, 1921, this had increased to \$167,082,414.95.

(c) The net debt of the City of Toronto has increased from \$60,564,385.00 in 1914 to \$75,452,881.00 in 1920.

(d) Advances by the Province to Hydro:

To October 31st, 1920 .....	\$ 66,312,501.10
Advanced in fiscal year 1921, to June 15th .....	21,500,000.00

\$ 87,812,501.10

In addition, there was appropriated at last Session, and still unexpended

at June 15th, the sum of.....	\$ 15,437,700.00
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\$103,250,201.10

In appendix 6 will be found fuller details of these.

8. Attention was drawn, in the argument before us, to the statement in a letter of Sir Adam Beck to the Prime Minister, with reference to the Port Credit and St. Catharines Railway, that the Commission had "issued bonds to the extent of \$11,360,363, all of which have been guaranteed by the Province." A letter was sent by the Commission to the Attorney-General of the Province, asking to be furnished with a statement of the moneys the Province had advanced to date on account of the railways under investigation, and "the extent to which, if any, the bonds mentioned as said to have been thus endorsed by the Province, had been pledged (or sold) to raise money thereon." Some correspondence followed, which is found in Appendix 8.

In the correspondence is included a letter of the auditor, Mr. Clarkson, dealing with these expenditures as elsewhere referred to. In Appendix 13 the amount thereof, namely \$1,254,241.11 is given, with particulars thereof. These expenditures have been made, notwithstanding that the question of whether the Province would or would not endorse the bonds of the Hydro Electric Power Commission, for the entire scheme, had not as yet been determined. It is to be noted, however, that under the late Government, an order-in-council, bearing date August 8th, 1919, had been approved with reference to an issue of bonds from time to time for the amount required for the Port Credit, Hamilton and St. Catharines undertaking. It appears that \$1,200,000 of the issue have been pledged, in connection with such expenditures.

In the correspondence, a reference is also made to alleged authority for expenditures under a letter of Sir William Hearst, then Premier.

If our view, as to the inadvisability of the Province endorsing the bonds for the construction of the project is given effect to, then the question of these expenditures so made will probably arise for consideration. The rights-of-way could, no doubt, be sold for substantial sums or otherwise dealt with, and the sum of \$335,048.23 for ties, said to have been contracted for before July 21st, could no doubt be repaid by sale thereof.

The Government would have to deal with the question of any deficiency or loss in the whole matter, and also with the disposition to be made of the balance of the bonds, namely \$10,160,360, which are said to be in the vaults of the Hydro Electric Power Commission unsigned and unsealed, and according to the present Government not at present available for expenditure unless it decides to proceed with the work. If, on the other hand, the municipalities, after full consideration of the facts as now disclosed, were to decide to go on with the project themselves, and at their own financial cost and risk, the entire amount of the expenditures could be recouped by them.

## II PRELIMINARY CONSIDERATIONS

A fundamental error was, in our opinion, made by the Hydro Electric Power Commission of Ontario, when the original estimates were prepared. It was repeated when the supplementary estimates were prepared. It consisted in not seeking and securing assistance of experienced operating men, at all events insofar as operating costs and possible revenues were concerned.

In a general way, Mr. Gaby had oversight of the preparation of the entire estimates. The Hydro Electric Power Commission had had some experience in construction costs in connection with the London & Port Stanley Railway. Clearly, Mr. Gaby had little practical experience to qualify him to undertake or supervise the preparation of estimates of probable operating costs and anticipated revenues in connection with a system of electric railways. The construction estimates were turned over to Mr. T. U. Fairlie, Departmental Head of Railway Engineering on the Hydro staff. He seems to be a man of experience. His estimates were prepared with care and detail and have not been very seriously called in question. The road is designed to be of a high class and one criticism of it is that the cost of construction per mile is greater than needed or warranted.

With reference to the estimates for construction costs, some questions arose on the one hand with reference to the possible failure to make proper allowance for sinking fund, depreciation and the like, and on the other as to whether in the light of changed conditions their total estimated cost might not be cut down by say fifteen per cent. A great deal of controversy, however, centred around the estimates for operating expenses and for revenues. The preparation of the estimates for these was entrusted to Mr. W. G. Hewson, a young electrical engineer on the Hydro staff, with considerable knowledge in electrical engineering matters, but without the experience, which, in our opinion, was necessary to qualify him for the work thus laid on him.

The proposed radial railways are singular in certain respects. The cost of construction per mile is admittedly high; the operating costs, upon the evidence as a whole, are low; the anticipated revenues are higher than experience has found to be attainable elsewhere except under unusual conditions. The per mile cost of operation is low. The operating ratio is low. Operating men of experience, we were told, could go over a territory, observe the number and location of the population, the character of the industries, and the like, and arrive at a fairly reasonable and reliable estimate of the business which might be expected to be done and the cost of operation of a road of a particular type.

The Hydro-Electric Power Commission, in fact, seems to have consulted no man of operating experience but relied mainly on their own officials, who were inexperienced in this particular kind of work. It would appear to us that in setting out to obtain information on which to make estimates for projected electric railways, the natural and proper course would be to obtain the actual business done and revenue derived from the roads in the territory in question. It is said, and probably with some truth, that they could not obtain from the existing steam and electric railways operating in the territory anything like full details of the



business they were doing, as these would not be disclosed to them if inquiries were made, and thus, so far as they were concerned, they had in this respect to depend on published annual reports, regarded as incomplete.

The second important source of information would appear to us to be that gained through inquiries as to roads operating elsewhere, either in Canada or the United States, somewhat comparable in territory, population, industries and the like. An attempt appears to have been made to get considerable information of this kind. Information of this kind would seem to us to suggest a warning against too sanguine expectations either as to low operating costs or high expected revenues.

The third mode of procedure would be to make inquiries and surveys through the territory in question and thus endeavor to ascertain what was the passenger and freight business which could be reasonably expected to be derived therefrom. This was the course pursued in very considerable detail by the Hydro-Electric Power Commission when preparing their original estimates and the results were also carried into their supplementary estimates. The same course seems to have largely been followed by Mr. Arnold, Mr. Saeger and their assistants in their investigations commencing in August, 1920, and continuing until June, 1921. It would seem that only to the extent that such inquiries and investigations would approach the number of actual passengers carried through the territory by existing transportation facilities and the actual freight, carload and less than carload, and otherwise, handled by these, would the results be likely to be reasonably accurate. If they appeared to go substantially beyond these, some doubt as to their accuracy would, as one would think, arise. Quite early in the investigation, it appeared clearly necessary to us to obtain the results of the actual operations of the railways doing business in the territory. We would thus have actual and practical data which the Hydro Commission might not have been in a position to get and which was so desirable. For this reason, we called officials from all of the railways, steam and electric, in the territory, and obtained from them evidence and statistics of their operating costs and revenues. Notwithstanding that this was from then on available, no real attempt seems to have been made by the Hydro-Electric Power Commission, or the Municipal Hydro-Electric Railway Association, or by Mr. Arnold or Mr. Saeger, to utilize or apply this evidence. Throughout their reliance seems to have been mainly placed on their inquiries and surveys. This, as it seems to us, was an error. While these surveys were made with care, and submitted in evidence with some detail, the figures resulting appeared to be too high and out of line with experience and the mode of distribution of the freight between the various points in the system was left a good deal to the haphazard discretion of the people making the surveys.

Upon the whole evidence, it seems clear that if these railways were constructed, they could not be operated at the cost estimated, and equally clear that the revenues expected could not be secured. One curious feature in this connection is the anticipation that in the first year of operation revenues would be obtained, which elsewhere had not been realized, even after long years of operation and building up. We should not overlook to mention that an engineer of prominence, namely, W. S. Murray, was in the spring of 1920 called in by the Hydro to supervise the estimates which they had prepared. He made a written report. One cannot read it without coming to the conclusion that on its very face, it shows him to have been too eager to endorse and to have made too little investigation to warrant him in doing so. As a curious example of his loose way of putting things, the following illustration from his report may be given: After quoting from a letter of Dr. Reid, the Minister of Railways to Sir Adam Beck, in part as follows: "As you are of opinion you will want the road (the Toronto & Eastern) I think it is better that we do no more construction in the meantime, but of course it is urgent that a decision be arrived at at the earliest possible moment in order that the road be constructed as a feeder for the Canadian National Railway System as originally intended" he (Murray) proceeds to draw this remarkable conclusion: "The above is an excellent presentation of the Minister of Railway's point of view regarding the *feeder relation of the steam road to the Toronto & Eastern Radial.*" He was called as a witness, and it was then found that he had had little or no operating experience and it was made plain that his examination of the whole project and of the estimates was a cursory and incomplete one, amounting to little more than what he himself termed it "a report on a report." His endorsement of the estimates lent little or no weight thereto.

### III HISTORY LEADING TO APPOINTMENT OF COMMISSION

The proposed Hydro System was being slowly developed while the previous Government was in power. Certain investigations had been made and certain moneys spent thereon. Bonds of the Hydro had pursuant to an Order-in-Council passed on August 8th, 1919, been issued for \$11,360,363, re Port Credit to St. Catharines Railway.

Following the change of Government, on March 3rd, 1920, Mr. Drury wrote to Mr. G. T. Clarkson, the Auditor, a letter, asking him to inform him, in a brief manner as to:

"(1) The state of the affairs of each of the systems and companies controlled or operated by the Hydro-Electric Power Commission of Ontario.

"(2) Approximate amount of moneys which must be paid by the Province within the next two years, and be loaned to the Commission in order to allow it to complete works undertaken by it, and now in course of construction, and to pay debts which become due within that period."

On March 18th, 1920, the Premier wrote to Sir Adam Beck, referring to his letter to the auditor and enclosing a copy thereof, and asked the Hydro-Electric Power Commission to let him know the estimated cost of construction of the Chippawa Power Canal, and when it was expected the works would be completed; what the condition with respect to the water supply to the Canal was, and the amount of power it was proposed that the Chippawa Works should develop. He also expressed a desire to receive a report from the Commission as to the situation of the Hydro-Electric Radial Railways, with particulars of the line which the Commission contemplated constructing and operating; the estimated cost of construction and operation of the same; and also to what extent it was believed expenditures would be made in the connection, within the next year or two.

On March 19th, 1920, the Auditor replied and reported to the Premier in a document of considerable length. At page 25 appears the following:

"In your letter you state that the Government is sympathetic to the Commission and you request me to express my opinion as to whether there are any reasons why support cannot be continued and extended to the Commission with benefit to the municipalities and the Province. In reply thereto I beg to report that there is, in my opinion, every reason to justify the Government in according a full measure of support to the Commission in its efforts to develop and utilize the *power resources* of this Province, particularly in view of the heavy advances in the cost of coal and other fuel which have taken place in the last year or two and the further increases which appear likely to occur in the near future. In providing such support to the Commission, however, there are, in my opinion, certain conditions to which the Province must pay regard and to which the Commission and the municipalities should also give attention in their own interests.

"The most pressing matter is the ability of the Province to raise funds under present conditions for its own requirements and the purpose of other developments in view and at the same time continue to extend credits to the Commission so as to permit it to enter upon projects of magnitude. At the present time the debt of the Province is about \$100,000,000 of which approximately \$40,000,000 has been advanced in cash and securities to the Commission, while \$10,000,000 in cash and securities has been paid for the purchase and use of the Central Ontario System which is owned by the Province and operated on its behalf by the Commission. The Province has in addition, guaranteed other securities to the amount of about \$8,300,000 to permit the Commission to purchase the Ontario Power Company and certain other minor properties . . . . .

" . . . . . Based upon estimates of the Commission and its Engineers upwards of \$29,000,000 will now be required from the Province in cash within the next two years to complete works in course of construction and meet maturing liabilities, while a further \$25,000,000 to \$26,000,000 may require to be provided by the sale or issue of bonds of the Commission—guaranteed by the Province—for the purpose of Hydro-Electric Railway Lines. With present abnormal costs it is stated that the Commission may find it to be against the interests of the municipalities to proceed too



rapidly with construction work on such Hydro-Electric Railway Lines as to do otherwise may impose serious burdens for the future. In that event the sale or issue of the \$25,000,000 to \$26,000,000 of bonds mentioned may be effected gradually and as conditions warrant. In any event, however, the total amount now in contemplation to be provided on the credit of the Province (subject to the guarantee of the municipalities) is upwards of \$55,000,000 or an amount in excess of one-half of the present debt of the Province. With such expenditures made upwards of \$105,000,000 will stand invested in Hydro-Electric enterprises and the Central Ontario System, and of this amount approximately \$65,000,000 will be represented by undertakings, the exact costs of *construction and operation* of which are still matters for the future to determine.

"At the present time Canadian securities cannot be sold in the United States except at excessive rates, unless principal and interest be made payable there, which of course, means that exchange would have to be paid on interest and principal payments as they fall due; the sale of new securities in England is out of the question. Accordingly, the probability is that a large proportion of the moneys now necessary for the purpose of the Commission may have to be borrowed in Canada. There can be no objection to this course if the Province is prepared to pay the rates of interest demanded. Money markets are not unlimited under present conditions, however, but they are more restricted than they have been in years. It is, therefore, necessary, so far as the Province is concerned, that it does not put too great a strain upon them if its high present grade of credit is to remain unimpaired and it is to continue able to borrow money without payment of too high a rate of interest.

"Under the above conditions and if the Province is to be left in the position where it can support the Commission in a proper manner and still provide for its other requirements at reasonable interest costs, it is essential, in my opinion, that there shall be the most complete confidence between the Government and the Commission to the *end that new projects shall not be entered upon—or substantial additions—beyond those of immediate necessity*,—be made to existing undertakings, without a complete and frank understanding in respect to each of them. Before new projects be entered upon, also, the Government should, in fairness to the Province, the Commission and the Municipalities, fully satisfy itself that they are based upon such business principles as will ensure that its guarantees are not likely to be called upon; at the same time moneys necessary for the purpose should be financed before construction of such work be commenced or their purchase undertaken.

"Moneys raised by the Province for the purpose of any Department of the Government or for the Commission *cannot, under the Audit Act, be paid over without a vote* of the Legislature, and when so voted they are strictly limited in amount. Under the Acts regulating its powers the *Commission has authority to issue bonds* and the *Treasurer of the Province* is empowered, subject to the approval of the Lieutenant Governor in Council, to guarantee the same, *but no limitations* are imposed in the Acts with respect to the aggregate amount of bonds which the Commission may issue or the Treasurer of the Province guarantee, with the approval of the Lieutenant Governor in Council. As the *liability of the Province is the same* to all intents and purposes *whether it raises moneys direct or guarantees bonds* of any undertaking, in that it must see that payment of all borrowings or guaranteed bonds be made, it is a matter worthy to be considered as to "*whether the Legislature should have direct control* over all the finances of the Province or the Treasurer of Ontario remain vested with authority to guarantee bonds with the approval of the Lieutenant Governor in Council."

He also refers to the question of higher rates of interest.

It was not until June 11th, 1920, that Sir Adam Beck replied to this letter, wherein he stated that the delay was due to the decision of the Commission to have a special report prepared on the Hydro-Electric Railways, and stated that Mr. W. S. Murray, a consulting engineer of New York, had been employed for the purpose. He intimated to the Premier that much of the information desired by him in his letter would be found in Mr. Murray's report. In his letter he also referred to the Toronto, Port Credit, St. Catharines Railway, as to

which he stated reports and estimates were submitted in the year 1915, to the municipalities between Toronto and Port Credit, re the construction and operation of this section as a part of the Toronto to London Lines. By-laws were submitted in January of 1916, and for the section between Port Credit and St. Catharines in 1917 and 1919, and were passed by large majorities. He further stated:

"Fifteen municipalities have executed the agreement with the Commission, authorising the procedure with this work and assuming the responsibility to the Railway of its operation between Port Credit and St. Catharines and have deposited with the Commission, debentures for the full amount. The Commission has issued bonds to the extent of \$11,360,363, all of which have been guaranteed by the Province. A great part of the engineering work has been completed, and the final survey of these sections and the Toronto, Port Credit and St. Catharines Railway, and right of way purchased between Toronto and St. Catharines to the value of \$800,000." He also made reference to the Toronto and Eastern Railway and the fact that "in May, 1919, some ten municipalities in the District passed resolutions requiring the Commission to negotiate on their behalf, for the acquiring of the properties owned by this railway, and to prepare reports on the completion of its construction and its extension to Toronto. An option on the property was obtained by the Commission; by-laws were submitted by ten municipalities from October, 1919, to January 1st, 1920, under the Hydro-Electric Railway Act, etc."

As to the Hamilton, Galt, Elmira and Guelph Railways, he said: "On January 1st, 1920, By-laws under the Hydro-Electric Railway Act were submitted to fourteen out of seventeen municipalities in this district, and of these thirteen municipalities carried with large majorities, and three have still to be submitted to the electors."

He referred to the estimates in connection with the Hydro-Electric Railway from Toronto to St. Catharines, to the estimates as submitted to the municipalities in 1915, 1916, 1917, and 1919 as at \$18,866,792.53 and to the difference between that sum and the then present day estimates at \$22,298,635, and stated that the latter included the cost of new equipment for rolling stock, whereas the Commission's estimates as submitted to Mr. Murray were based upon using the locomotive equipment then in use on the Queenston-Chippawa Canal. He further made this statement:

"As to the extent it is believed that the expenditures will be made by the Commission on the construction of Hydro-Electric Railways in the next year or two, the Commission has been able to obtain a credit of \$1,000,000 from the Bank by placing some of its bonds as collateral, and this amount it is believed, will be sufficient for the present year in the purchasing of the right of way, the engineering and the preparation of the right of way and for commencement of operations and conditions warrant. The contemplated work for the year 1921 provided conditions remain as at present, require an expenditure from time to time of \$2,500,000. It is the intention of the Commission to proceed with the work of construction of electric railways only to the extent and as rapidly as conditions, revenues, and the cost of material and labor will warrant."

He further stated therein:

"With reference to the negotiations of the Commission with the Dominion Government, the Commission has an option on the Toronto Eastern Railway for \$706,000, for which amount the Government is prepared to accept the Bonds of the Commission for a period of 50 years at 4½ per cent.

"The Commission has also received an offer from the Minister of Railways and Canals of the sale of the Toronto Suburban Railway at present operating between Toronto and Guelph and the Niagara, St. Catharines and Toronto Railway operating in the district between St. Catharines to Niagara, St. Catharines to Welland and Port Colborne, Port Dalhousie and Niagara on the Lake, for which the Minister of Railways and Canals is prepared to recommend to the Dominion Government the acceptance and payment therefor of the Commission's bonds for a period of 50 years at 4½ per cent."



It appears from the correspondence and statements recently received that on February 23rd, 1920, the Secretary of the Commission wrote the Treasurer of the Province that the debentures required had been prepared, and asked that they be endorsed as authorised by the Order-in-Council of August 8th, 1919. The Secretary also said:

"The purchase of rights of way has been going on for some time, and the Commission would be obliged if the matter of endorsing bonds would receive early attention, so that the necessary funds may be secured through the depositing of bonds to take care of the disbursements for right of way purchase and preparation for the construction of the lines."

It also appears from said correspondence that the total amount of bonds to be issued was \$11,360,363, and as already mentioned it is said to have been represented to the present Government that certain commitments had been made by the Commission, and certain advances secured by the Bank, that it was necessary that guarantee of these bonds should be duly executed in order that the Commission should be in a position to meet the obligations it had incurred.

It also appears therefrom that the Government consented to the guarantee, for the purpose of protecting the Commission against commitments already made, and it was not intended that any more bonds would be issued than were necessary for that purpose.

On various dates from March 10th, 1920, until May 20th, 1920, the Assistant Treasurer, Mr. Sproule, as authorised by the Order-in-Council, endorsed the guarantee of the Province for the issue of the bonds, and delivered them to the Hydro-Electric Commission to the extent of \$1,200,000.

It further appears therefrom that at the present time (July 13th, 1921) "The obligation of the Province in respect to the Toronto, St. Catharines Railway, consists of the guarantee on its part of \$11,360,363 of Hydro Radial bonds of which \$10,160,363 are held by the Commission not fully executed (said to be unsigned and unsealed)" "And the remaining \$1,200,000 are pledged to the Bank of Montreal for advance of \$200,000. No cash advances have been made by the Province for the purpose of the railway."

#### *Re Toronto to Port Credit Radial Railway.*

The correspondence further disclosed that expenditures have been made in connection with this railway, to the amount of \$683,286.74, on authority of a letter from Sir William Hearst, former Premier, "that if the Commission would obtain resolutions from the municipalities interested and request the Government to endorse and pass all amendments to the existing legislation which might be necessary to validate," etc. . . . "that on the basis of these assurances, with the resolutions of the municipalities in its possession, Commission acquired certain rights-of-way and made other expenditures which up to Oct. 31st, 1920, amount to said sum of \$683,286.74, that on that date bonds of six municipalities to the amount of \$5,109,573 stood deposited with the Commission; that no bonds had been issued by the Commission neither had the Province entered into any guarantee with respect to the line." "The \$683,286.74 expended by the Commission upon the line can, however, fairly be said to be part of the funds advanced by the Province to the Commission under appropriations made for the purpose of the different power systems and undertakings operated and controlled by the Commission."

Re Toronto and Eastern Railway .....	\$ 43,946.40
St. Catharines & Niagara Falls Railway .....	25,984.29
Hamilton, Galt, Elmira & Guelph Railway .....	36,482.06
Hamilton, Brantford, Woodstock and London Railway .....	17,617.34

\$124,087.09

The above amounts expended by the Commission in respect of such railways, according to the letter of Mr. Clarkson, "were made out of the funds held by it for the benefit of power undertaking, and without any apparent legal authority. No bonds had been issued by the Commission in respect to such railways or guarantees given by the Province." The remainder of Mr. Clarkson's letter shows how incomplete as to necessary by-laws, etc., matters were and are. The letter contains this further statement:

"Moneys expended by the Commission in respect to valuations, have been as follows:

Niagara, St. Catharines & Toronto Railway .....	\$1,005.27
Toronto Suburban Railway .....	5,604.86
Total .....	<u>\$6,610.13</u>

"These expenditures were made out of the general fund of the Commission and there would appear to be no statutory authority permitting disbursements of the same. No bonds have been issued by the Commission in the connection, neither is the Province under any liability in respect to the undertaking. In addition to the amounts mentioned, sums expended by the Commission in respect of the Hydro Radial Railway investigation amounted to October 21st, 1920, to \$44,704.09, which sums, the Commission contends, are repayable by the Province to it."

It appears from a statement recently received from the Hydro-Electric Power Commission that on "Electric Railway engineering investigations, surveys, by-laws and reports, under Hydro Electric Railway Act of 1914, they have expended the following sums:

For Fiscal Period ending October 31, 1914 .....	\$42,385.47
For Fiscal Period ending October 31, 1915 .....	45,925.18
For Fiscal Period ending October 31, 1916 .....	38,675.66
For Fiscal Period ending October 31, 1917 .....	37,909.76
For Fiscal Period ending October 31, 1918 .....	9,597.29
For Fiscal Period ending October 31, 1919 .....	47,156.48
For Fiscal Period ending October 31, 1920 .....	68,609.86
Period November 1st, 1920 to July 2nd, 1921 .....	4,036.41
	<u>\$294,296.11</u>

These are not matters as to which we were called upon to make enquiry or report. It appears also that on expenditures on account of Hydro Electric Railways they have expended the following sums:—

Toronto—Port Credit Line .....	\$ 715,413.26
Port Credit—St. Catharines Line .....	492,644.31
Toronto—Eastern Line .....	41,981.94
	<u>\$1,250,039.51</u>
Survey Instruments and other equipment .....	4,201.60
Total .....	<u>\$1,254,241.11</u>

It was growing out of these matters so far as they were in evidence in July, 1920, that this Commission came to be appointed.

#### IV RADIAL RAILWAY LEGISLATION

The question of the relationship of the Municipal Hydro Electric Radial Railways Association and the Hydro Electric Power Commission of Ontario was referred to by certain witnesses, and made the subject of comment by Mr. R. S. Robertson, in his argument. He suggested that much of the initiative and of the work done to create public opinion in support of the construction of the proposed electric railways, did not come from the municipalities concerned so much as from the Municipal Hydro Electric Radial Railways Association, and that there was an intimate association between it and the officials of the Hydro Electric Power Commission of Ontario. When public meetings were called, and public discussions taking place in connection with the proposed passing of by-laws in a particular municipality, the members of this Association and the officials of the Commission were present, speaking in favor of the project, and urging the passing of the by-laws. The Association also published literature for a like purpose. The argument was advanced, it was said, by officials of the Hydro, that in certain localities desirous of obtaining electric lighting, it was difficult, if not impossible, to extend lines to them. It was added, however, that if the railways were constructed through their locality, this



would make available cheap light. In one of the pamphlets published by the Municipal Hydro Electric Radial Railways Association, appears the following statement: "The Government guarantees the bonds, and by so doing virtually guarantees the estimates of the Commission," and the further statement: "The Hydro Electric Railway Association, composed of some 300 municipalities, after careful consideration, have no hesitation in endorsing the railway proposition, and urging the electors to give it their earnest support, because," etc.

It is suggested, on the other hand, that the whole question of the construction of the railways had its initiation with the municipalities, and that the Hydro Electric Power Commission of Ontario only took the steps they were invited to under the Legislation in existence; that it was in consequence of a request from the municipalities that they made investigation, surveys, reports, and ultimately estimates. The relationship between this unincorporated municipal organization and the Hydro Electric Power Commission appears to have been a somewhat intimate one.

Mr. C. C. Robinson said, in commencing his argument: "that the position of the Hydro Electric Power Commission in reference to its principals" was that "it acts in the matter not at all of its own motion or for any interest of its own, but solely at the instance and on behalf of the municipalities which interest themselves in the scheme. Its only interest in those projects is as representing those municipalities, and as desirous to carry out their wishes just so far as it appears economically sound and feasible to do so." He added that the case which had been presented to the Commission was "a case of the municipalities interested" and that the Hydro Electric Power Commission had "presented no independent case to this Commission, and it has called no witnesses before this Commission."

It appears to us that it is inadvisable for the officials of a Provincial Commission to take an active part in municipal elections and debates, with reference to the passing of by-laws, and particularly so where the scheme is the proposed construction of a system of electric railways, which is expected to be built by bonds of the Hydro Electric Power Commission, an endorsement of which is desired to be obtained from the Province. The Commissioners in charge of the Hydro Electric Power Commission of Ontario and their officials are apt to be thus drawn into controversial matters.

Certain of the witnesses, called pointed attention to the wide and enlarging scope of the powers entrusted to the Commission by the Hydro Electric Power Legislation, and the Electric Railway Legislation which has been passed. For example, by the Act of 1918, 8 George V, ch. 14, sec. 4: "The Power Commission Act is amended by adding thereto the following sections:

"6 (b) All special funds and the income and revenue thereon, and all moneys and revenues which now are or shall come into the hands of the Commission, whether as agent, trustee, owner or otherwise, shall form one fund to be called 'general fund,' and the Commission shall have power from time to time to make any and all expenditures out of the said fund for the purposes and objects of the Commission *without regard to the special trust or purposes* under which the same or any part thereof may come to its hands, and the Commission shall account for and from time to time pay out of the said funds, all moneys for which it shall be so accountable."

In the Hydro Electric Railway Act of 1916, ch. 37, there appears the following:

"Sec. 8. Notwithstanding anything in The Municipal Act contained, debentures issued or purporting to be issued by a municipal corporation under the authority of the Hydro Electric Railway Act, 1914, for the purpose of carrying out any contract entered into with the Commission under the authority of the said Act, shall not be included in ascertaining the limit of the borrowing powers of the corporation as prescribed by The Municipal Act."

By the Statute Law Amendment Act of 1917, ch. 27, sec. 32, said section 8 was amended by inserting after the words "The Municipal Act" in the first line, the words "or in any other general or special Act," by adding at the end of the said section "or by any other general or special Act."

These witnesses also directed the attention of the Commission to the terms of the agreements entered into between the municipalities who are interested in the construction of the proposed system of railways, and the Hydro Electric Power Commission.

By these terms a particular municipality cannot enter into an agreement with, or give a license to any railway or transportation company, except with the consent of the Commission. The Commission is empowered "to regulate and fix the fares and tolls for all classes of service," "to pay over annually to the corporations, *if deemed advisable by the Commission* in the interest of the undertaking, any surplus that may remain after providing for the items above mentioned," etc.

"In the event of the revenue derived from the operation of the undertaking being insufficient in any way to meet the operating expenses (including electrical power) the cost of administration and the annual charges for interest and sinking funds on the bonds, and for the renewal of any works belonging in whole or in part to the railway, such deficit shall be paid to the Commission by the corporations upon demand of, and in *proportion adjusted* by the Commission."

"Every railway and all the works, property and effects held and used in connection therewith, constructed, acquired, operated and maintained by the Commission under this agreement and the said Act, *shall be vested* in the Commission on behalf of the corporations, but the Commission shall be entitled to a lien upon the same for all moneys expended by the Commission under this agreement, and not repaid."

"In the event of any difference between the corporations, the Commission may, upon application, fix a time and place to hear all representations that may be made by the parties, and the Commission shall adjust such differences, *and such adjustment shall be final*. The Commission shall have all the powers that may be conferred upon a Commissioner appointed under the "Act Respecting Inquiries Concerning Public Matters."

While questions of policy and legislation are, as we are well aware, for the Government and the Legislature, we are, by the terms of our Commission requested or invited to make suggestions and recommendations in connection with or arising out of any of the subjects indicated as in our opinion may appear desirable,

The Legislation in question has been adopted by the Legislative Assembly, and the form of the agreement, to which reference has been made, has statutory endorsement. We would, however, suggest that it may be well to review and reconsider the legislation and the agreement in the light of the suggestions or criticisms thus made.

There is another matter, which we have raised in our own minds with reference to the position of the Hydro Electric Power Commission, and its relation to the municipalities under the Electric Railway Legislation and agreements already referred to. It is the many different positions, duties and obligations which the Commission may be called upon to perform and discharge. It is, as a public Commission of the Province, a trustee thereof for the development and sale of power, and in connection with the expenditures for construction and operation incidental thereto, and the moneys received and expended in connection therewith. It is, in the case for example of the Sandwich, Windsor and Amherstberg Railway (and it will be for the municipalities interested, if this system of electric railways is constructed and operated) the trustee for these municipalities in connection with the construction and operation. It will be the vendor of power for the Power Commission, and the purchaser from itself in that capacity, of power as the agent and manager of the Electric Railway System for the municipalities concerned. It will be the trustee of the municipalities for the physical property constituting the electric railway system. It will be the arbiter between the municipalities in case of differences between them and without appeal to any other tribunal in case of difference. It is the investigator and advisor of the municipalities in connection with the proposed system of electric railways and the framer of the estimates connected therewith. It is on its report and endorsement that it approaches the Government or is requested to do so by the municipalities concerned, with a view to obtaining endorsement by the Province of its bonds.

It does seem to us that for the members of any Commission to play all these important, differing and possibly conflicting parts is difficult, if not impossible adequately to perform. It would appear to us that it tends to divert the full attention and consideration of the Commission from the great work of developing and selling power. It is prone, as matters have thus far gone, to lead the members of the Commission or other officials, to be drawn into municipal



difficulties and differences. We suggest that these questions may well be deemed matters for consideration by the Government and Legislature.

There is a further question to which attention may also be again directed, and which was raised by Mr. Clarkson in his report of March 19th, 1920 at p. 24 in a paragraph already quoted, but here repeated:—

“Moneys raised by the Province for the purpose of any Department of the Government or for the Commission cannot, under the Audit Act, be paid over without a vote of the Legislature, and when so voted they are strictly limited in amount. Under the Acts regulating its powers the Commission has authority to issue bonds and the Treasurer of the Province is empowered, subject to the approval of the Lieutenant-Governor in Council, to guarantee the same, but no limitations are imposed in the Acts with respect to the aggregate amount of bonds which the Commission may issue or the Treasurer of the Province guarantee, with the approval of the Lieutenant-Governor in Council. As the liability of the Province is the same to all intents and purposes whether it raises moneys direct or guarantees bonds of any undertaking, in that it must see that payment of all borrowings or guaranteed bonds be made, it is a matter worthy to be considered as to whether the Legislature should have direct control over all the finances of the Province or the Treasurer of Ontario remain vested with authority to guarantee bonds with the approval of the Lieutenant-Governor in Council.”

We have, in the matter under investigation, a project involving the possible and probable expenditure of \$45,000,000. Under the existing legislation the Treasurer of the Province is apparently empowered under the law, subject to the approval of the Lieutenant-Governor in Council, to guarantee the same, without reference to the Legislature.

#### V. GENERAL DESCRIPTION OF PROJECT

##### TORONTO EASTERN:—Mileage 43.83—Double Track 6.0 miles.

The Eastern Terminus of this line is at Bowmanville and the proposed road extends from that town westerly through the Township of Darlington and the Towns of Oshawa, Whitby and Pickering; the steel is laid as far West as Whitby, although the grading was completed to Pickering. The location adopted by the Hydro Commission from Pickering westerly parallels, in a general way, the Kingston Road to a point where it crosses the Grand Trunk, and is located about half way between the original location of the Toronto Eastern and the Kingston Road. From the crossing of the Kingston Road the line extends westerly paralleling the Grand Trunk to the crossing of the branch line from Scarborough Junction to Markham and Stouffville. The proposed line then diverges slightly, roughly paralleling St. Clair Avenue to the crossing over the East Branch of the Don River, and from that point southerly through the City of Toronto to Ashbridge's Bay over the right-of-way provided by the Harbour Commission to the foot of Bay or York Streets.

##### TORONTO, PORT CREDIT & ST. CATHARINES LINE

Mileage 72.15; Double Track for 20.0 miles.

This line extends westerly from the foot of Bay or York Streets across the Harbour Commission's property and through the Exhibition Grounds to Sunnyside and thence westerly paralleling the Grand Trunk Railway from Toronto to Clarkson. From Clarkson the line swings slightly south away from the G.T.R. to the centre of Oakville where it connects with the Hamilton Radial Railway line. From Oakville the proposed line will be over the Hamilton Radial Railway to Burlington, or will parallel it if the acquisition of this portion of the Hamilton Radial System does not go through. From East of Burlington the proposed line extends westerly through the north part of Burlington and just south of Aldershot entering the City of Hamilton East of the Valley Inn from which point it parallels the Grand Trunk right-of-way to James Street in Hamilton. One location is through Hamilton on the Grand Trunk right-of-way, and the other location to the East of that and entirely independent through the city limits. From the east of the City limits of Hamilton the line extends easterly crossing the Grand Trunk near Stoney Creek and parallels that road through to Grimsby where it diverges to the East and closely parallels the main highway to a point about 1½ miles west of the Grand Trunk Station at St. Catharines where a junction is made with the present Niagara, St. Catharines and Toronto Railway which it is proposed to use as a connecting link with the Frontier at Niagara Falls.

### NIAGARA CENTRAL DIVISION:—Mileage 61.7

This is an existing road consisting of branches radiating from St. Catharines. One branch runs to Port Dalhousie, one to Niagara-on-the-Lake, one to Niagara Falls passing through Merriton and Thorold and one to Welland and Port Colborne. This System is at present owned by the Dominion Government and operated by the Canadian National Railways.

### HAMILTON-GALT-ELMIRA DIVISION

(or Wentworth-Waterloo Division.) Mileage 82.85

This line commences at the junction with the main line between Toronto and St. Catharines in the vicinity of Des Jardines Canal, Hamilton, and extends Westerly passing beneath the cemetery and the T. H. & B. Railway. The line then extends westerly up Dundas Valley to Copetown and thence by the villages of Brockton and Sheffield to Galt where a connection with the Grand Trunk Railway, called the Hespeler and Guelph Branch, is made. It is proposed to obtain running rights with a cross town connection to the Galt-Kitchener-Elmira Branch of the Grand Trunk Railway, which it is proposed to acquire. Below the Preston yard of the Grand Trunk Railway a connection is proposed to link up Galt, Preston and Kitchener to Guelph by obtaining running rights over the Grand Trunk Railway. At Guelph a connection is proposed from a point near Guelph Junction to the end of the line on Waterloo Road of the Guelph Radial Railway so as to get a central passenger entrance to the centre of Guelph and a freight connection with the Toronto Suburban.

### TORONTO SUBURBAN:—Mileage 64.5

It is proposed to acquire the existing line of the Toronto Suburban extending westerly from Lambton to the City of Guelph, including also the line extending from Weston to Woodbridge. It is expected that the part of this line within the City of Toronto will be turned over to the City Transportation Commission for operation. It is also intended to connect this line with the Toronto-Port Credit-St. Catharines line, near Sunnyside, running from Lambton via the old Belt Line Railway.

The Toronto Suburban is at present owned by the Dominion Government and operated by the Canadian National Railways.

A more detailed description of the proposed System was prepared and handed to us by Mr. Fairlie, of the Hydro Electric Power Commission. This will be found in Appendix 12.

## VI. OUTSTANDING FEATURES OF THE PROPOSED PROJECT

The gradual evolution of the project from the early years until even the concluding weeks of the inquiry, has introduced and developed various outstanding features. Some of these, brought to attention in the early periods of voting by the municipalities during the war, gave promise at that time of some advantage, especially to those municipalities which considered themselves disadvantageously situated or unfavourably dealt with by the then existing transportation systems. In the latter respects, it is to be noted that the situation has now very considerably changed by the acquisition of the Grand Trunk Railway and the formation of the Canadian National Railways by the Dominion Government. In certain other respects, some of the outstanding advantageous features claimed for the proposed system do not now appear to present the insistent appeal of necessity or loom as large as they did several years ago.

### (a) POPULATION AND TERRITORY

As already indicated, the area proposed to be served by the projected system is not only the most populous or densest in Ontario, but to some extent surrounds and is tributary to the capital city, with its population of over a half million. It is thus natural that the influence of the city, with respect to the project of this new transportation, should be very great. Its influence on the existing transportation systems has developed various features which have and will continue to be prominent factors in transportation, especially with the publicly owned and operated steam railways recently acquired by the Dominion Government.

It is a curious fact in this connection, however, that there has, as yet, been no development of suburban service by the steam roads in Toronto, and this has doubtless had a strong influence towards encouraging the project of Hydro Radials.



Out in the Province, however, and especially in the area concerned there is a very extensive net work of steam and electric railways, and it is doubtful if an area of equal extent, density of population or business and industrial activity either in Canada or the United States (except perhaps around the exceedingly large centres) is better served in this respect. The total mileage of the existing steam railway routes within the area, shown on the accompanying map, is 800 miles of which the double trackage is about 200 miles. That of the existing electric railways in the same manner is about 250 route miles. The total investment of the steam roads in this region might reach some such amount as \$50,000,000 to \$60,000,000 of which the Government owned has perhaps about \$30,000,000 to \$35,000,000. That of the existing electric roads is about \$22,000,000.

In view of this large extent of railway service throughout the region (see map accompanying this report), it is for very serious consideration whether and how great a demand there is for additional transportation, even with the advantageous features claimed for this project, and further, if built, to what extent a newly constructed electric system would attract lucrative business and maintain itself in competition with these railways, especially as against the existing Government publicly owned system.

(b) TYPE PROPOSED: SUBURBAN AND INTERURBAN PASSENGER WITH FREIGHT COMBINED

The type of electric railway proposed under the scheme is a counterpart of a high-class steam road operating between large cities. It is proposed to combine both the (1) Main interurban passenger business with the (2) shorter suburban and in some instances (3) local city services all for passenger transportation, together with (4) freight business doing heavy carload service along with (5) the lighter "less than carload" business and (6) express service. These additional classes are proposed to be superimposed upon an interurban railway, thus loading it to a capacity limited only by the practical operating conditions of its various lines.

The System is thus intended for the development of a rapid frequent service for both passengers and freight of a general and universal kind heretofore unattempted by any electric railway on this continent, or to use the expressions employed by Mr. Arnold in his testimony (Page 9417):—"This road is entirely different from any other kind of road I know of anywhere in the States"—"Such a combination as I have never yet seen anywhere else."

The proposed system as thus outlined is obviously an experiment, there is nothing like it anywhere in existence by which wholly to judge of its financial possibilities, or its practical operation. It will be new in type and new in the field, in close competition with long established railways which have developed slowly through years of constructive operation. It will be dependent solely upon its new features with which to wrest business from these other lines or create new business of its own.

(c) A PUBLICLY OWNED AND OPERATED ROAD

It is to have another distinct feature, new in electric interurban railways in that it is to be constructed and operated under co-operative public ownership. In this respect the proposed railway system is designed to be on similar lines to the publicly owned electric power system which has been operated with success since its early days when it too was an experiment.

It is here suggested for fuller consideration whether there may not be a distinct line of cleavage on public utilities between the development and sale of electric power from a great natural source of supply and the building and operation of electric railways which are entering a purely competitive field.

It is questionable whether the experiment of electric interurban or radial railways will be the same kind of experiment and have the same kind of success as has that of electric power and transmission. In the latter case the field was almost entirely new and the Power Commission by its ownership of generating stations and transmission lines and by making exclusive contracts with the municipalities for distribution, occupied a position which was largely non-competitive, and, as time has gone on is now almost entirely so. On the other hand, as has already been pointed out, the new electric railway lines will parallel existing lines and although proposing to offer frequent and fast service will nevertheless be in a large field of other transportation systems and practically every passenger and every pound of freight would be competitive business. The competitive nature of this business was recognized by Mr. Arnold in his

evidence (Page 9418) when, speaking of the feature of the road he said, "this would be a public road, the public would be interested in it and would probably be more friendly to it" and "again "They would ride on it I believe more frequently and ship their freight over it more frequently at the same rate than they would over a private road."

It may be unnecessary to point out that however public-spirited citizens may be, competition depends more upon circumstances of time and place and pocket and it is stated by experienced railway operating men that it is difficult to conceive anything more competitive than the railway business providing there is more than one serving road. Every passenger will choose according to fares, service and accommodation on which line he will travel and every shipper, if the decision lies with him, will route his freight according to his preferences at the time and as is well known, these preferences are highly varied and changeable by small circumstances. The only business upon which a railway can absolutely depend is traffic to points not served by competitors.

On general considerations we believe that, apart from the more frequent passenger service and in some cases faster light freight service expected to be performed by these electric railways, the special virtue of their being publicly owned and operated in so far as revenue getting is concerned, should not be unduly emphasised.

#### (d) EXCEPTIONALLY HIGH STANDARD AND COST OF CONSTRUCTION

Perhaps one of the most outstanding features of the proposed system of electric railways lies in the high standard of construction and cost which it is intended to adopt in their construction.

It is proposed to construct the new lines on the standard of heavy permanent steam road construction with steel rails 80 lbs. to the yard, with very heavy bridges, low grades, easy curves and all the attendant expense that these involve to attain highest speeds, at sixty miles per hour, for passenger trains and to haul long, heavy freight trains with the most powerful electric locomotive equipment obtainable for the purpose. There being expected an ample supply of power from Niagara Falls all electric transmission and station equipment is provided for on the most generous plan. The type of cars and their accommodation provided for in the estimates, are expected to be the last word in design and quality. The terminal construction in the large towns and cities, as for instance in Toronto, is to be of the highest standard of excellence comparable with or even surpassing that of long established steam roads operating in the same localities, providing for grade separation with bridges and deep cuttings of highly expensive character.

It is to be pointed out that commendable though the best may be, there lies somewhere a line beyond which it may not be economical to go having in mind the circumstances surrounding the project as to its prospects, the financial conditions of the time and the possibilities of subsequent development along progressive lines. An example of this is familiar to us in the case of the construction of the Grand Trunk Pacific which, it is now universally acknowledged, was "over constructed" for the times and the prospective business.

#### (e) FREQUENCY OF SERVICE AND HIGH SPEED

The proposed frequency of passenger service which it is intended to inaugurate is a feature of undoubted advantage in a system of this nature especially in competition with steam roads in suburban and interurban business if it is possible to secure it in practice. It is on this basis that the project expects to attract passenger business. On some of the proposed divisions this frequency is expected to result in immediate business owing to the infrequent and in some respects alleged inadequate steam service now in operation. On through runs such as Toronto to Hamilton or Hamilton to St. Catharines the competition will be keener at certain times of the day according to the schedules now in force on the steam roads. For intermediate stops and suburban services the advantages will lie with the frequent electric service especially if the steam roads still refrain from putting on suburban trains as for instance out from Toronto. Whether the electric passenger service is given in single cars or multiple unit trains, frequency will still be the controlling factor, the additional accommodation being provided only to adjust the service to the riding demand. Operating experts point out that this form of frequency and elasticity of service is one of the characteristics of electric railway operation.



Much is claimed in the project for the feature of high speed which it is expected will prove an attraction in securing business. In very large metropolitan cities like New York and Chicago speed in radial and interurban electric lines undoubtedly is an attractive feature in time saving and in competition with steam suburban lines. The tendency of to-day, especially in large cities, is fast and faster transportation but it appears to be most popular, and probably necessary, where in regions surrounding such very large cities the "commuter radius" of the daily riding habit in to the city is from 40 to 50 miles and it appears that a ride of about an hour and a quarter or a half is the economical limit for such daily riding to business. On the very fast interurban line, The Chicago and North Shore, to Milwaukee, the first hour's run of the limited train with nine stops carries one out only 21 miles from the terminus in Chicago over the elevated and private right-of-way route. The practical limit of the large commutation suburban business on this line is at 35 miles which distance the fast limited trains make in one hour and twenty-five minutes, which is at the rate of 24 miles per hour.

No such problem exists around Toronto where the size of the city and its probable growth and business of the near future will not, for a considerable time, demand a suburban riding radius of more than say 20 miles or an hour at the outside (at moderate speed).

Speed in interurban riding is more necessary if the electric road is to compete successfully with the steam road, hence it is proposed to provide for speeds up to 60 miles per hour and a schedule speed on limited trains including only a few stops, of about forty miles per hour. For instance, it is proposed to run from Toronto to Hamilton in one hour; this is faster than the present steam express train speed and is only five minutes slower than the fastest steam trains did the distance before the war. It appears to be proposed also to run from Toronto to St. Catharines with the fastest trains, 72 miles, in one hour and forty minutes or at the average rate of 41 miles per hour including stops. The run of 86 miles from Chicago to Milwaukee is made by the limited electric trains in two hours and 35 minutes or at the rate of 35 miles per hour. The "Highlander" train from Indianapolis to Terre Haute, one of the fastest electric runs on the continent, does the distance of 72 miles in two hours and five minutes or at the rate of 34.5 miles per hour. The high speed Buffalo to Niagara Falls line runs the 18 miles, outside of Buffalo, at about 30 miles per hour. The London & Port Stanley fast trains run London to St. Thomas, 16 miles, at 24 miles per hour.

This matter of speed then, raises the direct question of competition and it is for consideration whether for the longer runs it is worth building and operating such a very high class electric system to compete with the fastest steam express trains and at such faster rates say than Chicago and North Shore, or the Buffalo-Niagara Falls new fast line, and whether the luxury of the extra speed demanded is worth the greatly increased cost, keeping always in mind the preference that undoubtedly exists for electric over steam transportation for cleanliness, frequency and maintenance of time schedules.

In freight service it is claimed that the proposed system will not only handle carload freight more expeditiously but will so far beat the present steam road services in less than carload lots that it will approximate to an express service—in other words give an express service at freight rates. It was brought out in evidence that many vexatious delays occurred on the steam railways in handling local freight of this nature and, while in most cases brought to our attention, the extreme delays were unexplainable, it would seem that such delays were most likely occasioned in passing through the yards at large terminals. These difficulties are proposed to be removed and they doubtless can be to some extent by an electric road having more elasticity than a steam road in its operation. In ordinary despatch or express freight there is no doubt that the electric interurban freight operation will be advantageous compared with steam. With the utmost attention to details and to arrangement of freight operation on the shorter runs, it is to be expected too that the electric interurban and radial railway will provide a somewhat faster "less than carload" local freight service than the steam railway does now, but only on the condition that terminal deliveries are very much improved. It is likely, however, that with a large volume of such business, when details of handling become more complex especially when mixing freight operation with passenger business on the longer hauls, the tendency to delay will greatly increase not only on the lines themselves but in the yards and terminals.

## (f) TERMINAL ADVANTAGES AND UNIQUE TORONTO SITUATION

The Hydro Radial System as at present proposed, has what may be called three terminals and one terminal group. The three terminals are (1) Toronto (2) Hamilton and (3) Niagara Falls; the terminal group is comprised of Galt, Kitchener, Waterloo, etc.

Toronto being the metropolis of the system, forms of course, the most important terminal and by reason of its size, position and influence would, as has already been stated, be the greatest governing factor in it.

Hamilton being an intermediate terminal on account rather of its size and industrial nature, combines also the element of a junction point by reason of its location. As a terminal, however, its influence and importance is to be measured by the passenger business which it will contribute as a populous city and by the freight business which the system will be able to attract by its location, along with the steam roads, in or near the industrial quarter. The passenger business will probably be limited by the inconvenient location of the station distant from the civic centre and the freight business will be limited by the competition of the steam roads already long established in the district.

The Niagara Frontier is apparently expected to form a valuable terminal in providing connection with the American steam lines terminating or connecting at Buffalo or Niagara Falls. In some respects the Niagara, St. Catharines and Toronto Railway with its 62 miles of local and interurban lines may be considered to be a terminal group or system connecting as it already does with the Grand Trunk, the Toronto, Hamilton and Buffalo, the Michigan Central and the Wabash Railways. This railway has been exchanging most of its freight with the T. H. & B. at Welland but now being Dominion owned will more naturally work with the Grand Trunk delivering at the points of contact. In incorporating this system with the Radials it is proposed and expected that this local delivery would be discontinued and that freight originating on the N. St. C. & T. system for distant destinations will be hauled over the Hydro Radial System as far as possible before delivery to the Canadian National Railways at the outlying contact points (e.g. Kitchener, Toronto, Bowmanville). The practical working out of such a plan would have to lie in the hand of traffic experts to arrange but the Hon. Dr. Reid, Dominion Minister of Railways and Canals, in his testimony said that reciprocation would be arranged whereby interchange of freight would occur, each system hauling as far as it could on its own lines, once it was in its possession, to get it to its destination in either direction.

As for the connection to the American side at the Niagara Frontier it is proposed to secure a working arrangement with some American steam road which would hand over to the Hydro Radials its freight destined for Canada, crossing on existing bridges if possible and if not, on one to be built. It is expected from this that considerable through coal business might be developed. No definite plans were put forward or brought out in evidence as to how this would be accomplished.

The terminal group of industrial cities and towns represented by Galt, Kitchener and Waterloo are considered to have attractive possibilities productive of considerable passenger and freight revenue. This expectation is in spite of the fact that both steam and electric roads now interconnect all these towns and, with the exception of the short distance Galt to Hamilton, provide more or less frequent and direct service to the adjoining towns and cities and other parts of the province. It must be borne in mind that the existing steam roads, having developed during a long period of years, are thoroughly established in all these towns with spurs and private sidings connecting to all the principal freight revenue producing industries. One of the reasons assigned for the interurban passenger expectations within the Galt-Kitchener group is the present alleged inadequate passenger service of the steam roads and this appears to have actuated the proposal to (1) take over and electrify the Grand Trunk Galt-Elmira branch and to (2) seek operating and running rights over the Galt-Hespeler-Guelph branch of the same railway which also it is proposed to electrify. All of these arrangements are dependent upon the Canadian National, Grand Trunk Railway agreeing to such proposals and it has not yet been brought out in evidence as to how this would be accomplished or what restrictions if any, the Grand Trunk would impose to safeguard its existing business, especially of freight, in these large industrial centres in which it has been so many years established.

The Terminal situation in Toronto is unique in various respects. Apart from being a very large city having extensive industrial activities it is a distributing and sorting centre for freight.



The Grand Trunk and the Canadian Pacific Railways especially have large freight yards and in addition to their through business do a large local freight business which has been built up after a long period of operation, the Grand Trunk for over sixty and the Canadian Pacific for over thirty years. The G. T. R. now has 298 private and 43 public sidings and the C. P. R. 230 private and 43 public sidings (Mr. Watt). The Canadian Northern has been in operation only a comparatively few years and has but a small freight business. The industrial portions of the city reached and served by these railways lie partly along the Harbour front and partly in the outskirts, east and west of the city, the latter locality being now well developed.

The Hydro Radial plans provide for running across the City along the Harbour front which will provide for the entry of passengers to the central portion of the City Front and access for freight purposes to the steam railway yards, the Harbour and industrial portion along the front and in the Harbour area. This is unique in its provision for an uninterrupted, direct and convenient entrance to and across the city from the boundary at the Humber to the Woodbine. To get such a direct and advantageous entrance into and across a large city is an ideal which all promoters and operators of interurban transportation endeavour to attain and indeed nearly all the expert operating men who came as witnesses emphasised the great advantage of this feature of the proposed project. Various details and modifications were presented and discussed arising from the Hydro Commissions proposals as to the location of a Terminal Station, transfer of passengers, co-operation with City Street Railway System, co-operation of freight handling with the Harbour Commission, etc., but the outstanding feature of the direct private right-of-way leading into the City still stands as of great value possibly as the most valuable contained within the Hydro Radial proposals.

With respect to the freight question, however, the advantage gained by securing such a favourable entrance and route may not be sufficient to ensure the revenue-getting expectations of the Hydro Radials even though passing through the industrial region because practically all these industries are now supplied with private sidings to either the G. T. R. or C. P. R., who by their advantages in long haul business would severely compete with a new comer. As for new industries to be located on the Harbour area, the Harbour Commission proposes to put in its own sidings and adjust connections to industries on a rental basis with access by all railways without favour.

As to the passenger Terminal in Toronto the original proposal presented to the Commission, by the Hydro, was for a station at the foot of Bay Street, near the Harbour Commission's office. It was early recognized, during the inquiry, that this was insufficient in itself and proposals were put forward for loop connection and transfer to the city system and later Mr. Arnold proposed a subway loop scheme with a terminal near the City Hall. The uncertainty of the Viaduct project has left this matter very much in the air and the whole problem now seems to be one for co-ordination with it and the plans of the Civic Transportation Commission.

#### (g) CHEAP POWER COSTS.

Obviously the advantage of cheap electric power within the area of the Hydro Radial project is a consideration. Compared with certain electric railways in the United States which require to be operated with steam generated electricity, the advantage lies with Ontario with its cheap power. It is to be noted, however, that there is a considerable divergence in the prices paid by various roads in the United States depending upon their location and the price of coal, etc. The evidence has disclosed, however, that taking, in general, the largest and most favorably situated roads and ones that in point of business have been at times used to compare with this project, the power costs are such that they would generally be cut from a third to a half if the Hydro prices obtainable in Ontario were applied. As various witnesses have shown that the power costs from steam lie between 5 and 9 cents per car mile in the car operating costs this means that the saving by using Hydro power in this area will be not more than about two to three cents per car mile, or say 7% of the car operating costs, thus indicating that the factor of their cheaper power, while important, is not so vital as might at first appear.

#### (h) COMBINATION OF POWER SUPPLY WITH RAILWAY.

It has been brought out in evidence that it has been represented at various times, especially in the earlier days of the voting by the municipalities, that new Hydro power supply or cheaper rates for its supply, would follow the construction and operation of the Hydro Radials in certain

localities. This appears to have been urged by Hydro representatives as the outcome or as being possible by the construction of the proposed railways. In several instances this may be possible at the fringe of the area supplied by Niagara Power or at points lying between two power systems as, for instance, at Pickering, but it must be borne in mind, on the other hand, that practically the whole area concerned is now fully supplied with Hydro Power from either Niagara or other sources and this advantage is thus only very local.

## VII. INCOMPLETE FEATURES OF THE PROJECT AS PROPOSED

An examination of the description, presented by Mr. Fairlie of the Hydro Electric Power Commission and as described in the evidence, discloses certain incomplete features the extent and significance of which, while naturally and necessarily of great importance in considering the system as a whole, could not, for that reason, be adequately weighed. They are as follows:

(1) The Dominion Government gave an option on the Toronto Eastern Section under construction at that time (1920) by the Canadian National Railway. In this option, no arrangement is shown for interchange of freight at Bowmanville, or with the Oshawa Street Railway System. Dr. Reid, however, in his testimony stated "that was a very important point and there was no difference of opinion between Sir Adam and myself, and those that were there—there was no difference of opinion that we would inter-change the traffic, because the railways were important feeders of the Canadian National, and not only Sir Adam but myself—we both agreed that the freight would be interchangeable." Later he said, "The Hydro Electric Commission, through Sir Adam Beck, wanted those railways, and as far as I am concerned, that is what I was considering at the time, and so long as we had an arrangement where we had the inter-changing of freight, we would get the advantages you are just referring to." "I did not go into it any further then, I said. 'That would be a matter that would have to be gone into by the railway officials and Sir Adam Beck, if the matter was finally closed.'"

(2) The option also covers the purchase of the Niagara, St. Catharines & Toronto Railway, operating in the Niagara Peninsula, and the Toronto Suburban Railway, between Toronto and Guelph. Here again no arrangement is shown for interchange of freight with either of these roads.

(3) No agreement has been entered into with the Toronto Harbour Board, in connection with the right-of-way for the proposed radials across the Harbour Front. Neither has any arrangement been made for interchange with other roads, or terminal facilities into the different territories on the Harbour property.

(4) No arrangement has been made with the City of Toronto as to division of fares for suburban traffic.

(5) No arrangement, or agreement, has been made to secure the electric lines, belonging to the Dominion Power and Transmission Company, from Oakville to Burlington, although it is apparently intended to take over this section and operate in conjunction with the proposed line between Toronto and Hamilton.

(6) No agreement has been made with the Grand Trunk Railway in connection with an entrance into and passing through the City of Hamilton, although it is proposed to utilize its right-of-way for trackage from the westerly to the easterly boundary of the city.

(7) No agreement has been made with reference to the proposed acquisition of the branch of the Grand Trunk Railway, between Galt and Elmira, now forming part of the National Railway System, nor has any agreement been entered into for the interchange of freight or passenger business.

(8) No agreement has been made with reference to running rights over the tracks of that part of the Grand Trunk, between Preston and Guelph.

(9) No agreement has been made with the Canadian Pacific Railway, or Toronto, Hamilton and Buffalo Railway, for interchange of freight over their lines where coming in contact with the Hydro Radial System.

(10) No agreement has been arranged for with American roads providing for the carrying of freight beyond the Canadian border or vice versa.

It may properly be suggested that it was impossible to effect such arrangements or enter into such agreements in advance. This may be conceded, we are merely pointing out the many incomplete features in the project.



## VIII. COMPARISON WITH EXISTING RAILWAYS.

In the consideration of the economic feasibility of a transportation project like that of the Hydro Radials conjecture naturally arises as to how it would operate, compete and succeed in the territory concerned along side of the existing roads in the region and under the conditions it would meet or have imposed upon it.

Given what appears to be an advantageous, even attractive territory of a million population and very considerable industrial activity already served with steam and electric railways, this consideration of the probable success of the project readily resolves into an examination of (1) the performance of the existing roads within or near the region under local conditions and (2) the performance of similar or comparable roads elsewhere from which useful deductions can be made.

The most reasonable measure or criterion of the amount of business to be expected by the new system is to be derived from a study and comparison with the business already being done by existing railways within the region.

The performance of existing roads whether within the area or elsewhere must be considered in the light of their history, the period of their establishment and the connections and other facilities which they have acquired in that time and the special features which may affect their economical performance.

## (a) STEAM RAILWAYS WITHIN THE REGION.

The comparison and analysis of the passenger and freight business now being done by the steam roads which form the main artery of transportation is the first logical step. These roads extending from Bowmanville to Niagara Falls, a distance of 130 miles, comprise the Grand Trunk, double tracked throughout the distance; the Canadian Pacific, single track Bowmanville to Toronto, and also using the Grand Trunk tracks from Toronto to Hamilton; the Canadian National, single track Bowmanville to Toronto; and the Toronto, Hamilton and Buffalo from Hamilton to Welland, double tracked about a third of the distance. To this might be added, in order to complete the system, the existing electric railway system, the Niagara, St. Catharines and Toronto in the Niagara Peninsula until lately a feeder to the T., H. & B. (and C. P. R.) and now co-operating more especially with the G. T. R.

The portions of the proposed Hydro Radial project which naturally fall under comparison in this main route, comprise the proposed Toronto Eastern, the Toronto and St. Catharines and the Niagara, St. Catharines and Toronto Divisions.

As to passenger revenue, the evidence and exhibits which have been put in by the foregoing steam roads and the N. St. C. & T. electric road show an aggregate local passenger business, exclusive of all through traffic, of nearly two and a half million dollars revenue, in 1920, being carried on a total single track mileage of over 460 miles, of which 260 miles is contained in the 130-mile (main) double track G. T. R. route. For the purposes of comparison the three Hydro Radial Divisions (inclusive of the whole N. St. C. & T. system) as laid down in Mr. Arnold's proposals comprise the same over all distance of 130 miles (Bowmanville to Niagara Falls) but with 29 miles of double track and the various branches in the Niagara Peninsula and aggregate about 207 miles of single track. Over this system—less than half the former in trackage—the Hydro Radials, according to Mr. Arnold's report, expect to do a similar local interurban passenger business in 1925 amounting to nearly two and a quarter million dollars revenue; this is after deducting all suburban business.

So also with the freight traffic a similar comparison over the same lines and trackages can be made omitting all through freight business and considering only local business with carload and less than carload lots. This aggregate revenue of the steam roads in 1920 was slightly over one million dollars whilst that expected by Hydro Radials in 1925, according to Mr. Arnold's report will amount to about Eight Hundred and Thirty Thousand Dollars.

Using this criterion for comparison it is to be noted that the Hydro Radials alone on the main route between Bowmanville and Niagara Falls expect in 1925 to secure a revenue in local passenger business amounting to about 93% and in local freight business of about 78% of all that similar local business done by the several steam lines combined, now operating through the same region, with an aggregate trackage over twice as great as the Hydro Radials will have. And considering the combinations of both passenger and freight business the Hydro Radials alone expect to do about 88% as much as the steam roads combined under the same conditions (according to Mr. Arnold's figures).

On the unit passenger revenue per mile from Bowmanville to Niagara Frontier the combined steam roads (G. T. R., C. N. R., C. P. R., T., H. & B.) together with the N. St. C. & T. now average about \$18,300 on local business assuming a route of 130 miles, while the single track Hydro Radial line (including the Niagara System) but excluding suburban business expect to earn \$17,000 per mile in 1925 on the same kind of local business and for the same 130 miles. If, however, the Grand Trunk alone is concerned and using their local passenger returns for the 130 miles, Bowmanville to Niagara Falls (double tracked) for 1920 (with the last two months projected from the figures in Exhibit 110) the revenue becomes only about \$7,000 per mile and it thus appears that the Hydro Radials expect to get a local interurban passenger revenue in 1925 of nearly two and a half times that of the Grand Trunk Railway which it immediately parallels.

These expectations put forward by the Hydro Radial project in respect to its main trunk route appear very large. It is recognized that there may be some localities where similar performances are approached in passenger business alone, notably in the local business between Detroit and Toledo, 54 miles, but, on this line the combined population of the 54-mile route is twice that of the 130-mile Ontario route with about the same steam railway accommodation so far as passengers are concerned.

The T., H. & B. railway between Hamilton and Welland, 38 miles, one-third double tracked, which forms a connecting link from the American roads to Hamilton (C. P. R.) and which has a dense traffic had passenger earnings (including through passengers as well) of \$14,200 per mile, in 1919, and \$15,600 in 1920.

The purely interurban non-stop C. P. R. business, the greatest between Toronto and Hamilton, over the G. T. R. lines, had a passenger revenue in 1920 of about \$8,000 per mile.

The entire T., H. & B. System, comprising 100 miles, and competing directly with the proposed Hydro Radials with contract at Hamilton and Welland and indirectly through Brantford and Waterford, had a passenger revenue in 1920 of \$6,450 per mile.

With respect to the purely local freight business these comparisons are equally striking. The proposed Hydro Radials on the main route between Bowmanville and Niagara Falls (including the N. St. C. & T.) expect to obtain a revenue in 1925 (according to Mr. Arnold's report) of about \$6,400 per mile whereas the Grand Trunk on the same 130 mile route (double tracked) actually obtained in 1920 (as before from Exhibit 110 extended) only about \$6,000 per mile running closely parallel. If all the steam roads stretching between Bowmanville and the Niagara Frontier, including the T. H. & B. and the N. St. C. & T. are considered as a trunk route, 130 miles long, irrespective of the number of tracks, the combined revenue for 1920 reached only about \$8,000 per mile for the purely local freight.

On the T. H. & B. as a whole, and considering not only the local passenger and freight business but the through passenger and freight as well, its strategic position is such as to place it at the head of the revenue earning steam railways not only in the region but in Ontario. The passenger earnings on all business, local and through, over its 100 miles in 1920 was (according to the evidence of Mr. Martin and Exhibit No. 174) about \$6,450 per mile, the freight earnings were about \$22,700 per mile and the total earnings were about \$29,150 per mile.

For purposes of general comparison to embrace a similar region and in some respects similar business the foregoing might be compared with the combination of the two Hydro Divisions, Toronto to St. Catharines and Hamilton-Galt-Elmira, aggregating 154 miles. In these combined (using Mr. Arnold's figures), the passenger earnings in 1925 are expected to be at the rate of about \$13,000 per mile, the freight at about \$9,300 per mile and the total at about \$22,700 per mile covering all classes of business except suburban and local street railway (which latter would add about \$2,900 per mile of spread over the whole mileage). It is thus evident that these two portions of the Hydro System, situated in the locality, expect together to earn at a rate about 77% of that of the best paying steam road, not only in the region, but in the Province, and this too in the first year of its operation (1925) as compared with the steam road's operation for 25 years.

#### (b) ELECTRIC RAILWAYS IN ONTARIO WITHIN AND NEAR THE REGION

With respect to comparison with the electric railway lines in the province reference is had to the Government's memo. of 6th July, 1920 (Page 8) as follows:—"Radial Railway projects with high power and high speed lines are, as far as Canada is concerned, a new field of enterprise. It is true that there are certain radial lines in the Province, but it would hardly be fair to judge



the merits of the projected new scheme on the basis of the experience of the lines now in operation. If that were done the outlook would not be encouraging."

Although these electric lines are not doing quite the kind of business that it is proposed to develop under the Hydro Radial project there are many features which are sufficiently comparable in the identical portions of the region in which it is proposed to operate or in similar parts of Ontario, which will prove useful in visualizing the possibilities of the new system. These are in such railways as the London and Port Stanley, very much quoted by the Hydro Radial officials as a nearly similar type, the Niagara, St. Catharines and Toronto and the Toronto Suburban to Guelph, both of which it is proposed to purchase under the project, the Dominion Power and Transmission Company's Railways at Hamilton which will be a direct competitor in the heart of the region, the Grand River and the Lake Erie and Northern owned by the C.P.R., and operating in the group area of Galt-Kitchener, and the purely Radial Railways operating out of Toronto, owned by the Toronto and York Radial, now about to be acquired by the City of Toronto, etc., under a separate project.

The London and Port Stanley is a rehabilitated steam road of high standard, efficient and well operated, owned by the City of London under the technical direction of the Hydro Power Commission. It is situated strategically where it gets not only a large local passenger business, but a very large freight business, acting not only as a switching road between several steam roads but as a connecting road for the supply of large quantities of coal to these steam roads and to Western Ontario coming in across Lake Erie. This road is pointed to as a type or pattern on which the Hydro Radials are to be designed and is looked upon, despite its short length of 24 miles, as comparable with the similarly situated proposed trunk line and freight switching road, Toronto to St. Catharines. This road in 1920 earned a passenger revenue of \$11,800 per mile, a freight revenue of \$9,800, and a total revenue, including miscellaneous (but excluding Port Stanley Park) of \$22,800 per mile.

Compared with this performance the Toronto-St. Catharines Division of the Hydro Radials, 72 miles long, the best earner of the system, is expected to secure in 1925 a passenger revenue (interurban and suburban) of \$23,300, according to the Hydro estimate presented in October 1920, and of \$24,150, according to Mr. Arnold's estimate presented in May, 1921. (If the Suburban is omitted, Mr. Arnold's expectation for the interurban is \$19,470 per mile.) As to freight expectations the Toronto-St. Catharines Division is expected to earn in 1925 at the rate of \$19,560 under the Hydro estimate, presented in October, 1920, and \$15,160, under the Arnold estimate presented in May, 1921. This gives a total (Hydro estimate) for passenger and freight business of \$42,860 per mile.

In many respects significant comparison may be made in the case of the Niagara-St. Catharines and Toronto Railway, which it is proposed to purchase from the Dominion Government and incorporate into the scheme. This road with a total mileage of 64 miles, of which about 16 is local and 48 freight carrying, has been in operation for many years, has the advantage of being well established, is itself essentially a freight switching road and has a special type of passenger business on its main line to Niagara Falls. In 1920, it actually earned a passenger revenue—including the suburban and local street railways in the several towns and cities—of about \$10,000 per mile, whereas it is expected of it by 1925 when it is operated under and within the System of Hydro Radials to earn a combined interurban, suburban and local passenger revenue of about \$13,000 per mile, in the Hydro Estimates, and \$13,800 per mile in Mr. Arnold's estimate. In freight it actually earned in 1919 within 48 miles of line) at the rate of about \$5,550 per mile and \$6,800, in 1920; the estimates for Hydro operation in 1925 put an expectation of about \$10,700 per mile on this freight business by the Hydro estimates on a 48 mile basis (and \$7,994 on a 64 mile basis) and about \$10,500 per mile by Mr. Arnold's report on a 48 mile basis. The combined freight and passenger revenue expected on this Division in 1925 is upwards of \$22,200 per mile on a 62 mile basis, compared with the actual 1920 performance of \$15,000 per mile total revenue. In explanation of this very great increase it is stated by the Hydro officials that they expect large increases in population and industrial activity during the next five years and that the corporation of this group within the Hydro System will greatly increase the business.

As to the Toronto Suburban the earnings of this road in 1919, including sale of power and miscellaneous, were about \$5,800 per mile for the 68 miles total length, including local suburban

lines. The Hydro Radial project after incorporation into the system, developing the local and suburban business and extending the line down the Humber to connect with the main Toronto-St. Catharines line at Sunnyside, expects to increase this revenue in 1925 to \$14,800 per mile, according to the Hydro estimate of October, 1920, or to about \$12,100, according to Mr. Arnold's estimate of May, 1921.

The several lines of the Dominion Power and Transmission Co. radiating from Hamilton also present a useful comparison in some respects, although the standard of construction and type of service given by these is not as high as is expected to be offered by the Hydro Radials in the locality. The Hamilton, Grimsby and Beamsville branch of this system, 22.5 miles, had a total revenue in 1919 of about \$8,200 per mile. The best paying branch, that from Hamilton to Brantford, 23 miles, had a total revenue in 1919 of \$11,100 per mile.

The group of electric railways comprising the Grand River (20 miles) and the Lake Erie and Northern (50 miles) subsidiaries of the C.P.R., have also a strategic situation, joining the cities and towns of Galt, Hespeler, Preston, Kitchener and Waterloo as well as Brantford, Waterford and Port Dover. The System is operated for both passengers and freight and is mostly of a high standard construction, mainly on private right-of-way with portions similar to the London & Port Stanley and the class of business very like what is proposed by the Hydro Radials, that is, Interurban and local passenger with carload and less than carload and express business. At Galt it has 10 industrial sidings, at Preston 17, at Hespeler, 5, at Kitchener 10, and Waterloo 13. All have terminals except at Galt, where it is jointly with the C.P.R. They enjoy the advantage of working directly as feeders to the C.P.R., and handle a considerable amount of freight in that manner.

On the Grand River 65% of revenue is freight of which 95% is through. On the Lake Erie and Northern about 35% is freight. The total earnings on the Grand River in 1920 were about \$17,760 per mile, a considerable increase over the previous years which had run from \$10,900 in 1916 to \$12,500 in 1919, during which period the yearly surpluses ran down from \$51,000 to \$27,000. Passenger earnings in 1920 were at about \$7,500, and freight and express at about \$9,900. These in 1919 were respectively \$5,600 and \$5,800, the differences indicating mainly increases in passenger and freight rates. Money is now being put into this division for new equipment and revisions of lines, and when this is done the investment will be about \$110,000 per mile (including 5 miles double track and about 20% for private right-of-way). It is considered that the road will then be a first class interurban road.

The Lake Erie and Northern had a total earning in 1920 at the rate of \$6,470 per mile. Its cost in 1916 was about \$76,000 per mile with private right-of-way, 85 lb. rails and heavy equipment.

The radial railways operating out of Toronto, a total length of 72 miles, comprise the Metropolitan Division to the North, the Mimico to the West, and the Scarboro to the East; all on highways near Toronto. The Metropolitan has 3½ miles within the city limits as a purely local system, is comparable only with city lines as to earnings, and is not a criterion as to interurban service. The revenue from all services was \$14,331 per mile for the 72 miles. That of the interurban portion of the Metropolitan earned at the rate of \$6,850 per mile, for passenger, and \$1,990 for freight in 1920. The earnings on the Mimico Division in 1920 were about \$22,000 per mile, which indicates its suburban character.

#### (c) ELECTRIC RAILWAYS IN THE UNITED STATES

Electric Railways in the United States have had a most unsatisfactory history during the past ten years or more. To quote the findings of the Federal Electric Railways Commission, which reported to the President in August, 1920, "The Electric Railway industry, as it now exists, is without financial credit," and amongst other reasons they give, "They were not conservatively financed in their early years and have not since made good their over-capitalization," "Neglect to amortize this excess capitalization," "Failure to amortize the normal accrued depreciation," "Overbuilding into unprofitable territory," "Automobile and jitney competition," "The cost of new money." An attempt is made to suggest the possibility of bettering things in the future but no satisfactory statement is made which gives real promise of any probable or early solution of the problem.

While this situation and criticism applies largely to street railways it includes also the thousands of miles of interurban and suburban lines. In the middle states Pennsylvania, Ohio,



Indiana, Illinois and Michigan) those Systems within the Central Electric Traffic Association are about thirty in number, and of these, according to both Mr. Coen and Mr. Todd, only a few, perhaps five, have during the past ten years been making any returns on the capital (outside of bond interest) and many others have failed to pay even their bond interest. Both of these gentlemen are experienced electric railway operators and have a close knowledge of the industry in the Central States. Mr. Todd knows of no interurban electric lines which were built in the States during the past ten years, and Mr. Coen says that no new interurban building was done around Cleveland or in Ohio, since 1906. Mr. Bailey, an expert from the well known firm of J. G. White & Co., New York, who finance, build and operate electric railways, says they have had no new construction in eight or ten years, and adds "The idea of any one suggesting financing of an electric interurban road would not be given very serious consideration. Of recent years that feeling has been accentuated because they have all been in such a bad way." ....

It is obvious from the foregoing, that but few interurban electric railways in the United States can be looked to as encouraging examples of the business and the evidence given, and the personal knowledge gained by the Commission on its tour of inspection of various railway systems, confirm the belief that the very few systems that are being financially successful are situated in or close to exceedingly dense and populous, even metropolitan centres, or have some competitive or financial advantage which distinguishes them from the less fortunate ones.

The System which has perhaps been more frequently examined in this Inquiry in this regard, is that of the Detroit United Railways. Four divisions of this system have been particularly in evidence, the Detroit-Toledo, the Detroit-Jackson, and the Rapid (Main Line) and the Flint. The entire system has nearly 1,000 miles of which 306 miles are city (route) miles of line. The system is essentially a passenger one, although intrurban, and even suburban lines, carry freight, but not in standard box cars, as their franchise prevents them carrying them on the city streets. It has grown up around Detroit with eight lines radiating from it, of which two are parallel to the river, one in each direction. The principal features of this system comprise:

- (1) The large population served (about two million) of which over one million is in the City of Detroit,
- (2) The self-contained and self-centred radiating system with a radius roughly of from 50 to 75 miles.
- (3) The large suburban business into the metropolitan centre.
- (4) The rapid growth of Detroit and surrounding cities and towns, some of which were shown to increase independently of the interurban railways' entrance.
- (5) The disadvantages of not having a private right-of-way into the city and slow running through the City of Detroit, amongst the city street services and
- (6) The disadvantages of no freight terminal in the centre of the city.

In comparing the Hydro Radial project with the existing system in and about Detroit, the outstanding features are that the population of the latter is about twice that of the Hydro Radial region, but centred within an area very considerably less; the truly radial character of the lines all leading to Detroit are much more advantageous than the extended layout of the Hydro around the shores of the lake, etc., and the metropolis itself is twice the size of Toronto. On the other hand the Toronto situation is more favourable than Detroit, in that it can provide a direct right-of-way near to the centre of the city.

The best division on this system is the Detroit, Munro & Toledo, an essentially interurban road, of high standard construction, 60% double tracked, on private right-of-way. It is 51.7 miles long from Detroit City limits to terminal in Toledo, which is a city of 243,000 population (about twice the size of Hamilton, and of similar industrial nature). There is only a moderate rural population, but Munro, about two-thirds of the distance to Toledo, has a population of about 11,500. The equipment is heavy type similar to that proposed by the Hydro Radial. The running time for the fastest limited trains is 2 hours 10 minutes, to cover the 57 miles between terminals of which 5.2 miles is in Detroit over the city streets, consuming 40 minutes, and 3.6 miles is in Toledo, requiring 20 minutes. The average speed between terminals is thus 26 miles per hour, while the interurban running time between city limits is at about 46 miles per hour. (Note that if these fast trains could run over a private right-of-way instead of on the streets, in each city, at say 20 miles per hour, the average speed between terminals would be increased to about 37 miles per hour). It is interesting, according to Mr. Rodger, that this road carries about

80% of the local passengers between Detroit and Toledo. This is understandable, considering the passage of the electric cars through the city streets, the cheaper rate on the electric (\$2.40 compared with \$3.60 on the steam, return), and notwithstanding the faster time on the steam roads.

On the Detroit-Toledo Division the interurban earnings under these conditions were in 1920:—for passenger, \$14,381 per single track mile, and \$22,915 per route mile (i.e. considering double track); for freight, \$3,733 per track mile, and \$6,123 per route mile. The passenger revenue per car mile was 80 cents, and the freight and express were 97.6 cents per car mile. (These figures are taken from the evidence and report of Mr. Rifenberick, Consulting Engineer, late of the Detroit United Railways, who prepared extensive tables on the performance of these lines. The figures given by Mr. Rodger, the Auditor of the same Railway in his evidence, agreed approximately with these.)

The Detroit-Jackson Division is 70.6 miles in length, to Jackson, and with branches, has 95 miles; two-thirds is on the highway, and it is practically all single track. Jackson has a population of about 48,000; Ann Arbor a University City, 19,500; and Ypsilanti, 7,400. The total population tributary to this division is about 112,000 outside of Detroit. Its earnings in 1920 were:—Passenger, \$12,512; Freight, \$3,488; and total, \$16,993 per route mile, (Mr. Rifenberick's figures with Mr. Rodger in close approximation).

The Rapid (Main Line) Division has a length of 75.7 miles running north to Port Huron. It is mostly on the highway and, with the exception of 10 miles, near Detroit, is single track. The total population, outside Detroit, is 107,000 including, however, 48,000 of the suburb Hamtramck; Port Huron has 26,000 and Mt. Clemens 9,500. Its earnings in 1920 were:—Passenger, \$16,024 (Mr. Rodger closely agrees) Freight, \$2,287 and Gross \$20,396 per route mile (from Mr. Rifenberick only). It is to be noted that the small local Shore Line Branch, 17.4 miles, which belongs to this Division, if added will reduce the foregoing total figure to about \$15,500 per route mile.

The Flint Line has a total length of 80 miles practically all single track. The local city line in Flint, with a population of 91,000, a recent growth, is included in the system. The interurban earnings for this division in 1920 were:—Passenger, about \$13,000, per route mile (Mr. Rodger).

In general the comparison of the entire Detroit United Railways' System with the proposed entire Hydro Radial project indicates the large expectations of the latter. Messrs. Price Waterhouse's tabulation in which they use the Annual Report of the Detroit United, for 1919, on a mileage of 928, shows this system with a gross revenue of \$24,683,037, made up of passenger revenue, \$23,108,561, (which includes the huge earnings of the City Street Railways of Detroit) and freight revenue of \$1,514,238, together with a small miscellaneous. This is to be compared with the Hydro Radials' expectation in 1925 on a mileage of 323, with a gross revenue of \$8,083,941, of which \$4,937,624 is for passenger, and \$2,877,557 for freight, and \$268,760 miscellaneous. Put on a route mileage basis these become: For the Detroit United, Passenger, including City, \$24,864; Freight, \$1,632, and total, \$26,561. For the Hydro Radials, Passenger, \$15,287; Freight, \$8,909, and total, \$25,028. (From the Hydro estimates submitted in October, 1920). While the total earnings per mile are similar, it is to be noted that the D. U. R. comprise the large city passenger revenues, whilst the Hydro Radials expect a passenger revenue nearly 60% thereof, together with an exceedingly high freight revenue, five times that of the D. U. R.—all this in an area with a present population only about half that of Detroit region.

The Washington, Baltimore & Annapolis Railway operates between these cities with a total distance of 62 route miles, mainly on private right-of-way. The population of Washington is 537,500, and of Baltimore 733,800. The main route is between Baltimore and Washington, a distance between terminals of 44.2 miles, which their trains make in one hour and thirty minutes. Of this distance, 7 miles is through Washington City and Suburbs, which consumes about 16 minutes, and 2½ miles in Baltimore, which takes 10 minutes. The line is double tracked except for about 5 miles near Baltimore. It competes with two double track steam roads, whose length is about 5 miles shorter, and which make the run in times varying from 55 minutes to 1 hour and 5 minutes. The relative fares between Baltimore and Washington are \$1.13 for the electric, and \$1.56 for the steam. The nature of competition is therefore such that the electric line has to do a large business under conditions attractive to the public—it is evident that the cheaper fares



and the convenience of cars passing through the streets are advantageous factors against which the shorter time of the steam trains is to be considered. It is to be noted, too, that there is no steam road to Annapolis, where the Naval College is situated, so that this branch, 17 miles, has no competition.

This railway has been in operation since 1908, gradually developing business, but during the war had a prosperous period, owing mainly to a large military camp (Meade), between the two cities. Its earnings have considerably fallen back since 1918. In the year 1919 the passenger revenue was \$1,967,672, the freight, \$167,957, and total, \$2,168,119. These revenues gave \$18,535 passenger, and \$1,582 freight, and \$20,423 total per mile of track, and \$31,777 passenger, and \$2,712 freight, and \$35,015 per mile of route. For the year 1920, the total revenues were \$19,709 per mile of track, and \$33,790 per mile of route. (These from the Annual Reports of the Railway, prepared by Price Waterhouse; they are approximated in the evidence and Report, Exhibit 175, by Mr. Bailey). In 1919 this road made a net surplus of \$3,739 per mile of route.

The Washington-Baltimore is essentially an interurban main line road between these two large cities, with terminals 44 miles apart, whose aggregate population of 1,671,300 is considerably more than the population in the entire Hydro Radial area. It has been in operation over ten years and has a developed business. It is almost entirely a passenger line, the freight business being less than 10%. This road does not seem to be comparable with or to have a counter-part in any portion of the Hydro Radial project, and is not useful for comparison except perhaps in matters of cost of operation in which, while higher than the Hydro estimate generally, it runs lower in power and labor costs, and in Operating Ratio it runs considerably higher and more in line with other successful electric roads in the United States.

The Lake Shore Electric running westward out of Cleveland, a city similar and similarly situated to Toronto, has a total length of about 171 route miles. It operates express to Toledo joining such large towns as Lorain, Norwalk, Sandusky and Fremont, and runs through cars to Detroit. The population of Cleveland and suburbs is about 838,000, and with Toledo and other cities, etc., has a total population of over 1,400,000. The fast express cars run at 30 to 35 miles per hour, and the line and equipment is high standard. The cars run over Cleveland city streets and the conditions are similar to Detroit. This interurban business is looked upon as the most profitable especially between Cleveland and Toledo. There are suburban and local services as well in the smaller towns and in these respects this system would be somewhat similar to that proposed in the Hydro Radials. The business is largely passenger and the freight is mostly express and "less than carload." This System, in 1919, had a Passenger Revenue of \$10,000 per mile, freight of \$2,566, miscellaneous, \$1,075, and a total revenue of \$13,641 per route miles. In that year it made a net surplus of \$1,566 per route mile.

The Northern Ohio Traction Company is one of the most successful and best paying interurban electric railway systems in the United States. A comparison with it is somewhat difficult however, as about a third of its revenue is derived from miscellaneous sources such as sale of power, etc. It operates out of Cleveland, connecting Akron and Canton, and with these terminals serves a total tributary population of about 1,300,000. It has 172 route miles, of which about 40% is double track. In 1919 it earned passenger revenue at the large rate of \$23,646 per track mile, which includes various local city lines; its freight revenue in the same period was very small, only \$1,435 per track mile. (From Annual Reports and Mr. Bailey's evidence). It is an example of a system with a highly remunerative suburban and urban business.

The Chicago, North Shore and Milwaukee has already been referred to. It is a suburban road northward from Chicago, serving all the suburban towns along the lake which for 26 miles are practically continuous, and also a fast, interurban, road to Milwaukee. The main line is 86 miles long, on a private right-of-way double tracked, and has been in operation since 1908, although not until 1919 did it run its trains direct over the Elevated into the centre of Chicago. It has a frequent and fast service, there being 110 trains per day in and out of the loop at Chicago. The equipment is of the highest interurban standard. It has in competition two steam railways, one of which is alongside, and also the boat lines which compete in both passengers and fast freight. The road's freight service is being developed for Express and less than carload business; delivery into Chicago is by motor trucks. The total tributary population is about 3,500,000, of which Chicago has 2,700,000 and Milwaukee 457,000. 57% of the passenger revenue is business in and out of Chicago. The fares are based on 3 cents per mile, the rate Chicago

Loop to Milwaukee being \$2.57 plus war tax; commutation suburban fares are at about 1½ cents per mile. The passenger revenue of this road in 1920 was at the rate of \$34,349 per route mile and freight and express \$4,535, all based on 104 route miles. (These figures from Mr. Thompson's evidence). This road presents about the best example of the highest class suburban and interurban electric railway in the United States.

The Aurora, Elgin and Chicago line was frequently referred to. It operates westward out of Chicago, having a route mileage of 73. It serves a tributary population, essentially suburban, outside of Chicago, of about 118,000. In 1919, it earned Passenger Revenue of \$18,118, Freight and Express, \$2,486, and with miscellaneous, a total revenue of \$23,209 per route mile. (From Mr. Bailey's evidence).

The Waterloo, Cedar Falls and Northern Ry. of Iowa was described in evidence, by Mr. Cass, the manager, and appeared to be a good example of an interurban road in an agricultural region with some industrial activity, and doing a large freight business in proportion to passenger, much the same as is expected of certain branches of the Hydro Radial. This road is 93 miles long, including the Industrial belt line (13 miles) at Waterloo, a city of 36,000, and including the local street line. The total tributary population served, including terminals, is about 110,500. The competition with steam railways is keen, but the electric gets 76% of passenger business, notwithstanding the steam is much shorter and the rate slightly cheaper. Of the freight business, which produces about half of the total revenue, 75% is carload, and 25% L.C. L. in tonnage, indicating that the road does a large transfer or switching business from the steam road. This freight business is divided about evenly among farm products, coal quarry products and manufactures. The passenger revenue of this road in 1920 was at the rate of \$4,290, the freight at \$4,050, and the total (with miscellaneous) at \$8,640 per route mile. (From Mr. Cass).

The Indiana Service Corporation is a combination of several lines centred on Fort Wayne, and aggregates 220 miles, of which about 140 are purely interurban, and the remainder local. It joins Fort Wayne with LaFayette in Indiana and Lima in Ohio, and has branches to Bluffton and Decatur. The total population tributary is about 250,000, of which Fort Wayne has about 100,000, La Fayette 25,000 and Lima 40,000. The earnings of this System for 1920 as given in evidence by Mr. Feustel, the President, were for the whole system, \$6,636 per track mile, of which \$5,308 were passenger, and \$1,327 freight and express.

The Union Traction Company of Indiana is one of the large systems in the middle States, joining Indianapolis, Muncie, Marion and other smaller towns, lying north of Indianapolis, through a series of lines aggregating 452 miles, almost entirely single track. The average earnings were over this whole system in 1920, \$7,085 per track mile. (Mr. Feustel). One of the best paying divisions is the Muncie-Indianapolis, 56 miles long, having a tributary population, including Indianapolis, of about 400,000. The earnings of this Division in 1920 were: For passenger, \$11,945; freight and express, \$4,039, and total, \$16,469 per route mile. As this region is similar to our rural and interurban country, it, and these other railways of like nature in the middle States, are included herein for comparison.

The Terre Haute, Indiana and Eastern Railway System centres around Indianapolis and westward. It comprises 403 miles of line, and includes a main line to Terre Haute, 72 miles, as well as eastward, the same distance, to the Ohio Boundary, also four branch lines radiating from Indianapolis. It was built mostly between the years 1902 and 1909. It is about 80% on private right-of-way, practically all single track, and is built to a high steam standard of moderate class with 70 lb. rails, stone ballast and equipped with high class, but not luxurious cars, capable of very fast speed. Mr. Todd, in his evidence, says that between Terre Haute and Indianapolis, they operate "as fast, if not the fastest service of any interurban I know of in this country," at 72 miles in 125 minutes, including 4 stops, 34.5 miles per hour, and at places as high as 68 miles per hour. There are two trains each way at this schedule. Interurban passenger fares are based on three cents per mile. This System operates also the city railways, and in Indianapolis has an exceptionally fine Terminal, with large office building at the Civic Centre, into which all cars run and discharge passengers and light freight. The freight business is developed to its limit in competition with the steam roads, and they have made a specialty of agricultural business, including live stock. The total population tributary to this System in 1920 is about 630,000, of which 314,000 is in Indianapolis, and 66,000 in Terre Haute. Indianapolis has altogether 140 different kinds of industry; its automobile industries are second only to Detroit. Mr. Todd, in his



evidence, gave the interurban earnings in 1919 on the entire System as: Passenger Revenue, \$7,090; Freight Revenue, \$1,693, and Total Revenue, \$8,783 per route mile. On the best earning division, Indianapolis to Terre Haute, the Total Revenue was \$11,861 per route mile.

All the foregoing instances of electric railways operating in the United States are given for the purpose of permitting a comparison to be drawn, and a measure made of the expected performance of the proposed Hydro Radial Railways in Ontario. The various types and the circumstances under which these United States roads operate indicate the effect of different localities, populations, industrial activity and conditions of operation that it is reasonable to deduce, from amongst them, the possibilities of similar performances by the proposed new lines.

The expected earnings of the PROPOSED HYDRO RADIAL SYSTEM are here given so that this comparison may now be made. These anticipated revenues as put forward for 1925 by the Hydro Radial Engineers in their estimates, furnished this Commission in October, 1920, are as follows:

For the *entire System of 328 miles* comprising interurban, suburban, local and freight services averaged over the whole length:—

Passenger Revenue .....	\$15,064 per route mile
Freight Revenue .....	8,779 per route mile
Miscellaneous Revenue .....	820 per route mile

TOTAL REVENUE .....\$24,663 per route mile

For the best earning division, viz., the TORONTO AND ST. CATHARINES, 72 miles long, comprising the interurban, suburban, local and freight services:—

Passenger Revenue .....	\$23,300 per route mile
Freight Revenue .....	19,360 per route mile
Miscellaneous Revenue .....	687 per route mile

TOTAL REVENUE .....\$43,347 per route mile

The comparison of these revenues with the various performances of the large and most successful of the United States road, having elements of similar character, leads obviously to the belief that the expectations of the Hydro Radials are highly optimistic, especially in the first year of operation, compared with roads which have been in business for from ten to twenty years, and particularly when it is considered that the total population of the Hydro Radial Region now about 972,000 (and expected by the Hydro Engineers to be 1,108,000 in 1925) is considerably less in most cases than those of the regions in which these United States roads operate.

#### IX. COMPETITION BY EXISTING RAILWAYS, ETC.

A glance at a map of the territory in question in which it is proposed to construct the Radial Railway Project, shows the extent to which it is already served by existing transportation systems, both steam and electric.

Attached hereto are two maps of the Hydro Radial Region (Appendix 11). The one map shows the existing steam and electric railways, and the cities and towns and junction points. The other is the same map having the Hydro System laid on in red. It is to be observed with the latter that in those cases where the Hydro Radial system is intended to absorb existing lines such as (1) the Niagara, St. Catharines and Toronto Electric system, (2) the Oakville, Burlington branch of the Dominion Power and Transmission electric system, (3) the Grand Trunk Steam branch, Galt to Elmira, and where running rights are intended to be acquired, as on the Grand Trunk steam branch, Preston to Guelph, the red line is shown alongside the steam or electric one. This is done for the sake of clearness, and it must not be considered that it means a process of paralleling unless, as has been said in evidence, it might be found that the steam or electric lines could not be acquired from the present owners as hoped for.

The question of steam and electric road competition has already been dealt with very fully under different previous headings, and frequently when discussing local conditions and possibilities. The broad principle remains, however, that the proposed new Hydro Radial system is intended to be introduced into or superimposed upon a region which is already served by steam railways which do much of the business that the new electric ones are ambitious to do. The possible field for a new system is most likely to be more limited to certain classes of business

already pointed out, which it is hoped to obtain by reason of a frequent and somewhat more elastic and local service.

There is also to be considered the question as to what the steam roads are likely to do in anticipation of the entry into the field of the new electric system. Various statements were made in evidence as to courses that were open to the steam roads, and which of these they might possibly pursue. Some of these suggestions included the putting on of steam suburban trains out of Toronto for instance; the electrifying of certain portions of steam roads, and the putting down of a third track, for instance, on the Grand Trunk, between Toronto and Hamilton, for electric operation. The probable action of the steam roads to protect against the loss of carload freight business has already been indicated.

The Express Companies are also an element in competition, against which the new Hydro Radial System would have to work, and evidence was given as to this, especially in respect to fruit business, and the use of motor trucks in co-operation.

The steam boat business across Lake Ontario is not to be lost sight of. This is very considerable during the summer months, in both passenger and freight, and would very seriously cut into such business anticipated between Toronto and points like St. Catharines and Niagara Falls. To gain an idea of the extent of this business the following figures, which have been furnished by the Canada Steamship Lines, will be useful:—

On the Toronto-Niagara Line, two boats, in 1920, with a capacity of 4150, carried a total of about 311,000 passengers, and 12,000 tons of freight.

On the Toronto-Hamilton Line, 1920, two boats, capacity 2,400, about 97,000 passengers, and 22,000 tons of freight.

#### X. WILL THE PROPOSED SYSTEM BE SELF-SUPPORTING?

Naturally a very large part of the inquiry was directed to the determination of whether the proposed Hydro Radial project would be self-supporting. This was one of the primary objects, and for this purpose the original requisitions were made upon the Hydro Electric Power Commission to give the figures upon which the expectation of the successful operation was based.

The Hydro Electric Power Commission had already prepared and issued various estimates of cost of revenue and operation. First, the preliminary ones; then those submitted at various times to the municipalities and upon which they voted; then these estimates revised (including Mr. Murray's), were submitted to the Government in June, 1920 for endorsements; then on the appointment of this Commission of Enquiry, and following our requisitions, further estimates were submitted in September and October, 1920; then came new and further estimates prepared and submitted by Mr. Arnold, of Chicago, in May, 1921, (1) on a new principle, being for the Hydro Radial project with various material changes in plan, and (2) for the Hydro Radial project with revisions of cost only as Mr. Arnold thought ought to be applied (the "Supplementary Report"). All of these are set out in Appendix No. 3, from which the many variations in cost of construction and operation which had been made from time to time, can be seen. The estimates submitted to this Commission by the Hydro Electric Power Commission, now constitute the estimates of construction, revenue, operation and net income or surplus upon which the inquiry rests, and upon which it is to be determined whether the project will be self-supporting. These are to be taken, however, in conjunction with Mr. Arnold's further estimates.

In the following considerations, under the various factors entering into the successful financial operation of the undertaking, special attention is not only paid to the estimates and expectations put forward by the Hydro Power Commission and its Engineers, including Mr. Arnold, but these are examined in the light of the testimony of expert witnesses who have appeared before the Commission. These have had long and special experience in the actual operation, both financial and technical, of railway systems of this nature. It is to men with experience of this kind that this Commission has particularly looked for guidance as to the likelihood of the financial operative success of the Hydro Radial project.

##### (a) Construction Costs:

The estimates for construction provide for an Electric Railway System of exceedingly high standard as already indicated, and for a project seemingly conceived in a desire to obtain what has been termed a "super road" combining all the expensive features of the permanent way and structures of the high standard steam railroad with electrical features and equipment which, if



anything surpass those of the highest standards in electric railway construction. The intention appears to be to include not only the best features, but in many respects the most expensive and even luxurious that are to be found in those electric suburban and interurban railways operating out of large metropolitan centres like New York, Chicago, Philadelphia and Detroit, (exclusive of such steam electrified roads as the New York Central, New Haven, etc.) Indeed it has been brought out in evidence that in some cases it is intended to exceed these roads in the matter of expensive equipment.

The estimates of initial construction, assuming commencement so as to be into entire operation by 1925, which were presented to the Commission by the Hydro Electric Power Commission in September and October, 1920, are as follows, (including the purchase of the several Dominion Government roads and their betterments):—

Toronto-St. Catharines Division .....	\$20,603,953
Toronto Eastern Division .....	9,164,132
Hamilton-Guelph-Elmira Division .....	7,192,895
Toronto Suburban (Guelph) Division .....	3,591,774
Niagara, St. Catharines & Toronto .....	5,091,330
	<hr/>
	\$45,644,084

It is proposed in addition to the foregoing to add \$2,724,069 in the first five year period of operation, and an additional \$2,475,602 for the next period up to 1935, or a grand total of \$50,843,755.

These additions are solely for the System as planned and not for extensions thereto.

The new and further initial construction estimates submitted by Mr. Arnold of Chicago, in May, 1920, covering the same routes for construction and operation by 1925, are given below. These differ from the foregoing in providing for various new features or additions to the Hydro's proposals which Mr. Arnold thought necessary to earn the revenue estimated, such as Subway Terminal in Toronto, additional double track, extra equipment, etc., and on the other hand show a reduction (of about 15%), which, in Mr. Arnold's opinion, would be justified by the downward trend in prices, as between May, 1920, and April, 1921:—

Toronto-St. Catharines Division .....	\$19,580,000
Toronto Eastern Division .....	9,794,000
Hamilton-Guelph-Elmira Division .....	6,002,500
Toronto Suburban (Guelph) Division .....	4,222,000
Niagara-St. Catharines & Toronto .....	4,960,000
	<hr/>
	\$44,558,500

As in the previous instance, it is proposed in addition to add \$2,900,000 by 1930, and an additional \$2,623,000 in the second period up to 1935, or a grand total of \$50,081,000. It is rather significant that notwithstanding the various changes incorporated by Mr. Arnold in his new estimates, the totals, although slightly less, do not differ materially from the original Hydro estimates.

On all sides it is agreed that the estimated construction costs of this System are very high. Placing the foregoing total estimated costs against the total mileage, the costs work to nearly \$140,000 per route mile, including equipment. Considering the Toronto-St. Catharines Division alone, it is about \$280,000 per mile. These are obviously very high compared with the costs per mile of various high standard electric roads described in the evidence, especially when it is considered that the Hydro Radial System is practically single track. (The Toronto-St. Catharines is about one quarter double track.) Mr. Rodger gave the cost of new double track city lines in Detroit during the past two years, including heavy foundations and paving, as about \$100,000. per route mile, not including equipment, and also said that, covering the entire Detroit United System, city and rural, "the good with the bad", the valuation as in 1918 worked out at about \$68,000 per route mile. Mr. Coen tells of the Lake Shore Electric double track line, including terminals (except Cleveland), as capable of being constructed at about \$120,000 per mile. Mr. Cheval, speaking of the new high speed *double track line*, Buffalo to Niagara Falls, completed in 1918, including right-of-way, power and equipment for the 17 miles at about \$225,-

000 per mile. Mr. Thompson says that the Chicago-North Shore's exceedingly expensive *double track line*, with separated grade crossings through the crowded suburban towns which stretch continuously out of Chicago, cost at the rate of about \$271,000 per route mile. Mr. Cass gives a valuation figure of \$100,000 per mile for the Waterloo and Cedar Falls line, including private right-of-way, terminals, street railways (double tracked), and equipment, and says that it might cost 40% more if built today. Mr. Todd says that the whole of the Terre Haute, Indianapolis and Eastern, with its steam railway construction (single track), cost about \$60,000 per mile complete. Mr. Bailey says (p. 5932), that about \$100,000 per mile would be a reasonable figure per mile for roads similar to this general type of road, single track, for a valuation as of the present time. Mr. Coleman says that their best line, Hamilton to Brantford, (single track), cost about \$78,000 per mile, when built, but that a similar line might not now be built for \$100,000 per mile. Mr. Royce says that the Toronto Suburban, if built now, would cost about \$55,000 per mile. Mr. Kirkwood, referring to the costs of the Lake Erie and Northern, put into operation in 1916, gives figures which indicate that its cost was about \$76,000 per mile. Mr. Martin says that the T., H. & B. steam road cost, when built, about \$100,000 per mile, which includes the tunnel in Hamilton.

It is fair to say that much of the high class expensive construction is in and around Toronto and this naturally raises the question as to whether Toronto should not be separately considered and not exercise such an effect on the rest of the system as to cause such a high average cost per mile throughout the whole.

The question of whether the system can be constructed at the estimated cost was a matter for some discussion. On the one hand the cost estimates were criticized for not including certain general expenses incident to construction and, on the other hand, it was suggested that having regard to the changing and lowering cost of materials and labour there was a probability of their being constructed for a less amount than that contained in the Hydro's estimates submitted October, 1920. A fair estimate of this latter reduction on those construction costs appears to be about 15%, which is the amount used by Mr. Arnold in his report and evidence. Hopes were entertained by some witnesses that this might be further reduced but no substantial reasons were given in support in so far as construction in the near future is concerned.

The estimates for the general construction were prepared by Mr. Fairlie of the Hydro Power Commission staff, who seems to be an engineer of considerable experience in this work. These estimates were complete and detailed and as a matter of fact, stood the test of criticism very well.

In general the costs of construction (including the amounts for purchase of existing railways) averaging very high as indicated, provide for an exceedingly expensive system. The question is immediately raised as to whether a too expensive class of road is being provided for, especially having regard to the amount of business to be anticipated. The answer which is made to this is that unless this high class road is built it will not offer the competitive advantages with which to attract such anticipated revenues and so it is argued that this very high standard is necessary if the project hopes to succeed.

In considering whether the road will pay the factor of the annual carrying charges of interest on such high cost of construction must be kept in mind. In our opinion a road constructed at such a high cost is thus very seriously handicapped by reason of these necessarily high carrying charges. This is easily seen where, if using the figure of average cost per mile of \$148,000 for the whole of Hydro Radial System the carrying charges, for interest alone, at 6% are \$8,400 per mile, or about 35% of the entire revenue expected per mile. Also on the Toronto-St. Catharines Division, a single track road, (except for the suburban portion near Toronto) where the cost (for 72 miles) is at the average rate of over \$285,000 per mile, the 6% interest charge is about \$17,000 per mile, or almost 40% of the total expected revenue on this division. It is not apparent how a road built at such high initial costs and with such large fixed carrying charges per mile can justify itself compared with the best electric interurban roads now operating nor how it can economically compete within the region it intends to operate.

#### (b) Operation Costs.

It is expected by the Hydro Electric Power Commission Engineers to operate the Hydro Radial at a comparatively low cost. It is pointed out by them that the nature of the business



they propose to do, that is, the combination of various kinds of passenger and the various kinds of freight service which they will carry on at one and the same time, will assist in lowering these relative costs. It is also urged that the advantage of cheap electric power will be a factor. They expect by very close fitting of operating schedules by minimising lost time in stops, yards and waiting periods, by economising on depreciation and maintenance costs and in very efficient administrative and operative staff work to keep operation expenses down to a figure which, according to various expert witnesses engaged in actual electric railway management of a similar nature, appears extreme and optimistic.

Mr. Arnold in his report apparently recognizing a doubt as to these expectations, states that it is necessary to estimate operating expenses in considerable detail. "The variations . . . make it quite impossible to arrive at any sound conclusions on any other basis than that of detailed estimates, in which the various items of operating expense are so estimated as to approximate as closely as possible the actual results to be anticipated on the given road with its given service."

This implies that the operation methods and cost of the proposed system will be peculiar to themselves, different from other roads and systems, and in this respect, as in the type of service and high cost of construction, a departure from standard and accepted practice in operation of such roads. These expectations appear plausible but when seriously considered in comparison with electric roads in actual practical and successful financial operation elsewhere, seems from the weight of evidence of men operating many of these roads more optimistic than advisable to rely upon.

The estimated operating expenses submitted by the Hydro Electric Power Commission in September and October, 1920, for the various divisions put on a route mile basis for the first year of operation, 1925, are as follows:

Toronto-St. Catharines .....	\$20,826 per route mile
Toronto Eastern Division .....	13,427 per route mile
Hamilton-Guelph-Elmira Division .....	11,007 per route mile
Toronto Suburban (Guelph) Division .....	9,817 per route mile
Niagara, St. Catharines & Toronto .....	14,060 per route mile

Average for whole system (323 miles) .....	\$13,905 per route mile
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The various factors which enter into these expenses are divided into general groups of (1) Maintenance of Way, Structures and Equipment. (2) Traffic Operation. (3) Depreciation. (4) Miscellaneous. Following is a tabulation of these operating expenses as submitted for the whole system by the Hydro Engineers in (1920), and by Mr. Arnold in (1921):

#### OPERATING EXPENSES, ENTIRE HYDRO SYSTEM AS EXPECTED IN 1925.

<i>Expenses.</i>	<i>Hydro Estimates.</i>		<i>Mr. Arnold's Estimates.</i>	
	<i>Amount</i>	<i>Per Cent.</i>	<i>Amount</i>	<i>Per Cent.</i>
Maintenance .....	\$ 504,010	11.2	\$ 541,000	11.9
Way and Structures, Equipment .....	438,282	9.2	469,000	10.3
Traffic Operation:				
Power Expense .....	604,219	13.4	645,000	14.2
Conducting Transportation .....	1,481,633	33.0	1,776,000	39.0
General Miscellaneous .....	891,196	19.8	745,000	16.4
Depreciation .....	572,002	12.9	374,000	8.2
	<hr/>	<hr/>	<hr/>	<hr/>
	\$4,491,342	100.0	\$4,550,000	100.0

It will be observed from the foregoing that again Mr. Arnold brings out a total operating cost for the entire system almost the same as that of the Hydro notwithstanding the many changes he made in plans and service; his detail variations from the Hydro, however, are considerable, especially in the Miscellaneous and Depreciation which he has put lower and in the cost of Conducting Transportation which is much higher. It is in the latter that variations in opinion occur and that divergence upon different lines may result due to management, wages, etc.

The cost of operation is based largely upon the cost of operating a car per mile and it is by this means that comparisons of operation costs are made in railway management. A great

deal of evidence was taken from operating experts on this point and the consensus of opinion was that the expectations of the Hydro Radial System were too low in this respect. Keeping in mind Mr. Arnold's statement as above, that such comparisons can be made only in detail and having reference to the kind of business expected to be done on these lines, it is desirable to give figures from different types of roads and compare them with different divisions of this system.

It is maintained by the Hydro Engineers that by reason of the large amount of freight expected to be handled, the average car mile costs of operation over the whole system will be brought down on account of the fact that the cost of operating a freight car is much less than for an interurban car. It has not been made clear in evidence, however, that the difference in actual practice is as great as the Hydro Engineers maintain, because due regard does not seem to have been made to the large relative costs of handling freight cars in and about yards, terminals, sidings, etc., and at such places where delays usually occur. Mr. Bailey says that terminal costs for such movements add from one-third to one-half to the cost of actual movement between terminals. This is reflected in a statement made in evidence by Mr. Staffel (6691) that the Cleveland Southwestern & Columbus Railway (out of Cleveland) had a freight car operation cost in 1919 of 43c per car mile. This appears to be the only figure in evidence as to an actual operating cost per mile for freight cars on an electric railway.

It is pointed out by Hydro Engineers that the cheap power costs will be advantageous toward low costs of operation; this has already been referred to as having but a small influence on the whole and as indicated in the foregoing table differences of power costs, cannot materially affect the whole.

It is also claimed by the Hydro Engineers and Mr. Arnold that the high speeds to be maintained in interurban services, the small lost periods of waiting at ends of runs which the very efficient management and close schedule will secure and the large mileage that is expected to be obtained from all classes of cars, will all tend to bring down the cost per car mile. Reference to the car mile costs given below for those electric lines already described which carry on high speed and highly efficient services in actual operation will indicate that this expectation is optimistic. In comparing these it should be borne in mind that in most cases the wages paid for operation labour, one of the largest elements in cost, are not far out of line with those proposed to be paid by the Hydro. It was shown in evidence that the Hydro expected to pay the same rates as now in force on the Niagara, St. Catharines and Toronto Railway; these rates are below those both of the Detroit-Toledo Line and the Chicago North Shore, typical high speed, highly efficient lines, operating out of very large cities, but above those operating out of Indianapolis, including the line to Terre Haute which too, is a very high speed line. It is to be observed also that as a general rule the operating ratio is lower on roads paying low wages (other things being equal) as wages form such a large part of operating costs. This is indicated to some extent later herein under "Operating Ratio." It is for consideration in this connection whether the lower "Platform wages" proposed by the Hydro (compared with some of these high class rapid roads) are to be considered reasonable in proportion for this special class of service and it is also a question in how far these lower "Platform wages" may not produce the low operating ratio expected.

In his report Mr. Arnold carefully works out the expected cost of operation per car mile for the various branches of the Hydro Radial System as they will be expected in 1925 as follows. These combine all classes of passenger and freight operation in each division.

#### EXPECTED CAR MILE COSTS—HYDRO RADIAL

Toronto-St. Catharines Division .....	72 miles	23.4 cents
Toronto Eastern Division .....	44 miles	22.4 cents
Toronto Suburban (Guelph) Division .....	70 miles	30.4 cents
Hamilton-Guelph-Elmira Division .....	80 miles	36.9 cents
Niagara, St. Catharines & Toronto .....	62 miles	41.9 cents
Entire System .....	328 miles	28.7 cents

Note 1. The above mileage is approximately only for comparison. The mileage for freight operation is considerably less.



Note 2. The original estimates for Car Mile Costs submitted by Hydro in October, 1920, were 32 cents over the entire system, the lowest being the Toronto-St. Catharines at 26.8 cents and the highest the Hamilton-Elmira at 38.7 cents.

It is to be observed and it is significant in the foregoing that the highest rate per car mile occurs upon the N. St. C. & T. now actually in operation, which is reasonably in line with most other electric roads doing similar business. It is to be noted that this division is intended to operate attached to the end of the New Toronto-St. Catharines Division which is expected to have the lowest rate per car mile and which forms thereby a striking contrast at the junction point. This difference has not been explained in evidence and does not appear consistent.

Following is a table of Car Mile Costs for various Electric Systems or lines, mostly in the United States, actually in operation which have already been referred to for comparison in other features. This table will serve to contrast the expectations of the Hydro Radial System as put forward by Mr. Arnold according to the above table. The figures given for these roads, now in operation, are for 1919 and 1920, and are exclusive of taxes:

#### COMPARISON OF CAR MILE COSTS.

1920 Terre Haute, Indianapolis & Eastern.....	403 miles	45.63 cents (Todd)
1919 Detroit-Toledo Division (D.U.R.) .....	52 miles	44.5 cents (Rodger)
1919 Detroit United (Part System) .....	250 miles	42.5 cents (Rodger)
1920 Waterloo, Cedar Falls & Northern .....	93 miles	42.1 cents (Cass)
1920 Indiana Service Corporation .....	140 miles	42.0 cents (Feustal)
1919 Lake Shore Electric .....	171 miles	40.6 cents (Coen)
1920 Chicago North Shore .....	86 miles	39.4 cents (Thompson)
1920 London & Port Stanley .....	24 miles	35.5 cents (Richard)
1920 Buffalo-Niagara Falls (high speed) .....	18 miles	35.5 cents (Chavel)
1919 Chicago North Shore .....	86 miles	33.1 cents (Thompson)
1919 Washington-Baltimore .....	62 miles	32.4 cents (Bailey)

In order to classify the foregoing into various detailed costs especially on roads or systems which have now come prominently to notice for comparison with Hydro Radials the following table is added. This shows that the Hydro expects an exceedingly low cost for conducting transportation and allows only moderate charges for miscellaneous; the saving by cheap Hydro power is not a controlling factor in proportion to the total. The Hydro figures are taken from Mr. Arnold's report:

#### DETAILS OF UNIT COSTS PER CAR MILE.

	Main of Way	Main of Equip.	Power	Conduct- ing & Transp.	Gen. & Misc.	Total
1925 Hydro, Entire System .....	4.6(a)	4.2(a)	4.1	11.1	4.7	28.7 (Arnold)
1925 Hydro, Toronto-St. Catharines ....	3.1	3.0	3.7	8.9	4.7	23.4 (Arnold)
1919 Chicago North Shore .....	4.4	3.7	5.0	14.0	6.0	33.1 (Thompson)
1920 London & Port Stanley .....	4.0	2.7	—(b)	20.4	8.4	35.5 (Richards)
1920 Buffalo-Niagara Falls .....	15.2(c)	—	2.4	9.9	8.0	35.5 (Chavel)
1920 Chicago North Shore.....	4.0	3.8	6.2	17.5	7.9	39.4 (Thompson)
1920 Indiana Corporation .....	7.0	6.5	9.5	14.0	5.0	42.0 (Feustal)
1919 Detroit-Toledo .....	9.0	3.8	7.9	15.2	8.6	44.5 (Rodger)

(A) Depreciation in the Hydro figures is divided equally in Maintenance above.

(B) Includes Power, the price of which was not given.

(C) Includes all Maintenance.

With regard to the contention that the proposed Hydro Radials cannot be wholly comparable with some of these roads because of the features of speed, large freight service, and especially efficient management reference may be made, not only to the foregoing figures for the specially high speed and frequent service roads, but to the following table which shows the extent or the amount of service which is imposed on some of these roads, compared with what is intended to be imposed on the single track Hydro System. It is to be kept in mind that the car mileage expected over the entire Hydro System is about evenly divided amongst interurban, suburban and freight services. The argument that the very large amount of mixed service and especially freight, will materially reduce the operation costs, hardly seems

consistent with the actual results on these roads, and by reference to the operating costs of these high class American roads it will be seen that the expected operating costs of the Hydro are quite out of line. This table, incidentally, also shows the extraordinary crowding of the lines, both suburban and interurban, that it is intended to obtain on the Hydro System, compared with other lines operating, especially those out of Detroit and Cleveland; this phase came in for some criticism by certain expert witnesses, and indeed was the main reason why Mr. Arnold decided to add double track to the original Hydro Engineers' plans. It is to be observed also that the Hydro System, with its high loading, groups itself amongst those double track systems operating out of very large cities, and this too indicates the very large business that it expected to carry on what will practically be a single track system.

**CAR MILEAGE PER ROUTE MILE  
SHOWING TRAFFIC IMPOSED ON VARIOUS LINES**

Line	Route Miles	Car mileage per year of all Classes	Car mileage per year per Route Mile	Source
Terre Haute-Indianapolis (high speed).....	72	1,140,000	15,830	(Rifenberick)
Muncie-Indianapolis .....	56	995,000	17,760	(Rifenberick)
Detroit United (part a) .....	250	6,976,000	27,900	(Rodger)
Lake Shore Electric .....	171	3,906,000	22,840	(Bailey)
Detroit-Toledo .....	52	1,795,000	34,520	(Rodger)
Hydro Radials, (entire) .....	328	15,904,000	48,450	(Arnold)
Aurora, Elgin & Chicago .....	73	3,682,000	50,250	(Bailey)
Chicago North Shore .....	86	6,905,000	80,300	(Bailey)
Washington-Baltimore .....	62	5,059,000	81,600	(Bailey)
Hydro: Tor-St. Catharines .....	72(b)	6,331,000	88,000	(Arnold)

(A) Car Mileage for Pontiac and Flint Line was not furnished.

(B) About one quarter double track.

In the light of the foregoing it does not seem reasonable in our opinion to expect that the Hydro Radials can operate at the exceedingly low costs they anticipate. Not only do these comparisons indicate this, but various witnesses, especially Dr. Herdt and Mr. Bailey have given strong opinions which confirm them. While it is difficult to arrive at any figure which should be taken or an amount which should properly be added say to Mr. Arnold's estimate of 28.7 cents, we are of the opinion that this figure should be increased by several cents to bring it into reasonable line with roads actually operating, even considering all the various advantages claimed for the Hydro project. As for the original figure in the Hydro estimates of 32 cents, average over the System, if that is to be considered at all, it was based on conditions much more unfavorable than Mr. Arnold's, especially in certain divisions, and taking these into consideration we are of the opinion that this figure, too, ought similarly to be increased to a figure at least as high as 35 cents.

*(c) Passenger Revenues*

The passenger revenue expected in the Hydro Radial project is based primarily upon population and secondarily on the expectation that this population will ride to an extent, and in and the other cities, is considered to be so great or dense, and their riding habit likely to be so great that the electric railway system will immediately attract sufficient passenger business to such a proportion called the "riding habit," so that a certain revenue will accrue to the new electric railways.

The population of the region, at present thought to be 972,000, including that of Toronto and the other cities, is considered to be so great or dense, and their riding habit likely to be so great that the electric railway system will immediately attract sufficient passenger business to assure the yearly passenger revenue estimated on the various divisions.

But the populations on which these expectations are based are not those of today, but those expected to be present within the region in the year 1925, which is assumed to be the first year of complete operation of the system after construction. This expected population in 1925 is variously estimated, and no clear conception of what was expected by the Hydro was brought out until the evidence of Mr. Arnold who, in his report, put the total in the region at about 1,108,000, an over all increase of about 14%. In this connection it is of interest to refer to the population tabulation which follows; generally speaking, the cities, towns and rural communi-



ties shown there together represent nearly 85% of the entire region. Taking the cities and towns alone shown, Mr. Arnold expects that they will have in the aggregate, an increase of about 21%, between 1920 and 1925. This indicates that the population figures used in these revenue expectations are based generally upon the large urban communities growing at a rate half as fast again as the smaller towns and rural communities.

It was clearly stated in evidence by Mr. Gaby and others that the expected passenger revenue could not be secured unless such large increases in population were assumed, and Mr. Gaby admitted (page 352), that if the existing populations (of 1920) were used for computation (it is presumed with the same riding habits) the project would show a deficit instead of a surplus.

This increase of population expected in the five years, and upon which the entire passenger revenue expectation is thus dependent, is based upon the projection upward of the rates of increase which have occurred mainly since 1900. In the case of the cities and larger towns these past rates have, in most cases, been very high, even during the war, (e.g. Kitchener, Oshawa, St. Catharines, Niagara Falls, Welland and Thorold, owing to munition work or new large public works), while in the case of the smaller towns and rural localities they have been very low, in fact many of the latter have decreased. These figures have been obtained and the projections or predictions of future populations made by the Hydro Engineers; Mr. Arnold accepted them for incorporation in his report.

Among these predictions of future population Mr. Arnold gives the following expectations for the five years, 1920 to 1925, the present populations being merely local (assessment) estimates, and not the actual census figures, such as are now being made in the census of 1921. It is to be observed in this connection that local population estimates are usually in excess of the actual Dominion census returns, so that there is some danger of high estimates having been used for the present (1920) populations, and if so, the expected per cent increase would in reality be more than Mr. Arnold shows, and hence more extravagant. In the following rural portions only the tributary populations are used computing a belt averaging 2½ miles on each side of the line, which seems reasonable. While no separate portion of the expected increase in population is shown as attributable to the construction of the electric railways, it is naturally implied in certain localities, as for instance, outlying villages, or towns, near a large centre or belts of rural areas in strategic localities. It is to be noted, however, that the expected increases are mainly in the cities and towns as previously indicated.

#### EXPECTED INCREASES IN POPULATION

(From Mr. Arnold's Report)

	Assumed in 1920	Expected in 1925	Expected in 1930
Toronto .....	515,000	620,000	720,000
Hamilton .....	115,000	142,000	176,000
St. Catharines .....	19,860	23,800	27,500
Niagara Falls .....	14,800	17,000	19,000
Welland .....	9,300	12,000	14,800
Whitby .....	3,800	4,880	6,670
Oshawa .....	12,000	15,700	20,500
Kitchener .....	23,000	28,800	36,100
Waterloo .....	5,700	6,540	7,570
Guelph .....	18,000	20,300	22,900
Galt .....	12,600	14,600	16,700
Preston .....	5,400	6,740	8,400
Dundas .....	5,100	5,700	6,520
Thorold .....	5,000	5,400	5,800
Etobicoke Twp. (Tributary) .....	3,569	5,570	7,540
Barton Twp. (Tributary) .....	4,777	6,100	7,800
Saltfleet Twp. (Tributary) .....	3,680	5,430	7,180
Scarboro Twp. (Tributary) .....	1,597	2,100	2,510
Grantham Twp. (Tributary) .....	3,000	3,300	3,650
Stamford .....	3,500	3,800	4,400
Crowland .....	1,000	1,200	1,400

In certain townships where there has been a steady decrease of population; the Hydro figures show an expectation of arresting the decrease, as for instance, in Trafalgar, Nelson, Clinton, Darlington, Niagara, Wainfleet, Louth, Beverly, Dumfries, Waterloo, Woolwich and Guelph. This list of only some of the townships concerned, indicates the extent of the depopulation of the rural portions of the region.

With respect to the increase in the City of Toronto, it is of interest to observe that a large percentage is expected to occur in those localities lying East and South East and West and Southwest at the outskirts of the City where the proposed radial lines are to be constructed.

The "riding habit," which as the term implies is the extent to which people use or are likely to use the electric railways, has been the subject of considerable testimony and discussion. It has been maintained that this is not only peculiar to interurban electric railways of this nature, but is dependent, both in electric and steam service, largely upon the distance from the centre where suburban riding is frequent, or between two centres where interurban riding is large. Much discussion arose as to the extent of riding as being dependent also upon the relative populations of the communities and their nature, i.e., whether residential, industrial or rural. It has seemed quite clear, from the evidence, that where cities and towns are sufficiently large to be self contained they would attract toward themselves passenger traffic from the vicinity and would not cause much traffic between adjoining towns of similar size and type. That means that the larger cities and towns will by their nature, business, industry, attractions, etc., cause a passenger flow towards themselves at the expense of the smaller communities. In the case of Toronto, and its immediate environs, this was amply clear, and these theories were borne out by the actual facts brought in evidence of large riding habits of the suburbs and outlying portions of the city itself, north, east and west. In other portions of the system, however, the applications of these principles were not so evident, especially in hypothetical expectations as to what the people would do when choosing their route and their class of transportation, whether electric, steam or motor car. Attempts were made to show graphically the effect of various factors on riding habit, but it was quite obvious that with so many variables, the best conceived curves frequently led to dubious results.

Much evidence was put forward to show the extent to which the population of the region and of the various divisions in it could be expected to contribute in passenger revenue per capita to the Hydro Radial System if put into operation. The estimates for revenue, both of the Hydro Engineers (in October, 1920), and Mr. Arnold (in May, 1921), are based upon an expectation per capita per year, riding frequently according to these "riding habits" as described. Following is a summary of the expected Passenger Revenue:

#### PASSENGER REVENUE EXPECTED, 1925.

	Hydro Estimate	Mr. Arnold's Estimate
Toronto-St. Catharines Div. ....	\$1,694,676	\$1,739,000
Toronto Eastern Division .....	940,000	1,101,000
Hamilton-Guelph-Elmira Div. ....	831,447	696,000
Toronto Suburban (Guelph) Div. ....	671,868	710,000
Niagara, St. Catharines & Toronto .....	799,633	856,000
	<u>\$4,937,624</u>	<u>\$5,102,000</u>

Note: Passenger rates are based upon the standard fares of 2.875 cents per mile. Suburban fares are at about 1.5 cent per mile.

In the foregoing the suburban passenger revenue is included with the interurban in Mr. Arnold's totals. It is to be observed that in the case of the Toronto Eastern, Toronto Suburban and Niagara, St. Catharines & Toronto Divisions he expects larger revenues than the Hydro's Engineers on account of the expected development of suburban business.



## PASSENGER REVENUE PER ROUTE MILE EXPECTED IN 1925.

	Hydro Estimate on 323 miles	Mr. Arnold's Estimate on 330 miles.
Toronto-St. Catharines Division .....	\$23,300	\$24,150
Toronto Eastern Division .....	21,447	25,000
Hamilton-Guelph-Elmira Division .....	11,315	8,500
Toronto Suburban (Guelph) Division .....	9,795	10,140
Niagara, St. Catharines & Toronto .....	12,428	13,800
Average over System .....	<u>\$15,287</u>	<u>\$15,150</u>

Note: In the foregoing estimate of Mr. Arnold the suburban earnings on the suburban portions of the divisions (e.g. Toronto suburbs for both Toronto-St. Catharines and Toronto Eastern) are lumped with the entire division to show its expected earning power.

In connection with the foregoing tables it is to be observed that Mr. Arnold again has approximated the previous Hydro Estimates in bringing out passenger revenue totals and per average route mile almost the same. The manner in which he has arrived at these figures is quite different.

It is also to be noted that the Niagara, St. Catharines and Toronto Railway, now in operation under Dominion Government management, had a passenger revenue in 1919 of only \$9,643 per route mile (Mr. Friend, and Exhibit 81).

As to passenger fares and their possible effect on revenues there was much evidence. It appears quite possible that interurban fares may be slightly reduced in the future when conditions warrant or demand arises from the public, but there again comes in the question of competition with steam railways. It has been stated in evidence that with a reduction of fares there would come a reduction in operating costs (per car mile), but it was clearly shown that such a reduction, if any, would not be in the same proportion. As to lowering operating costs in sympathy with fluctuating revenue, it was also shown that it would not be possible to regulate the costs per car mile with great refinement nor in the same proportion.

Comparing the foregoing expected passenger earnings over the whole Hydro Radial System with roads in the United States actually in operation, it is to be observed that the only ones of the latter which exceed the Hydro Radial expectations are those operating out of very large cities. For instance, the Chicago North Shore and Aurora, Elgin and Chicago earn more per mile; these are both fairly short lines and with considerable double track. The Washington & Baltimore Railway earns more, but is almost entirely double tracked. The Northern Ohio earns more only when including its large population of local city lines. Of the best earning branches of the large Detroit United System, the Detroit-Toledo earned about 50% more, with its 60% double tracked 56 mile route, and the Rapid Division earned about the same with its 85% single track.

This introduces the question of the expected yearly passenger revenue per capita of population in the region. The Hydro estimates comprise the following expected earnings, on and tributary to the various divisions, per capita in 1925, for all area outside of Toronto:—Toronto-St. Catharines, \$9.95 per capita; Toronto Eastern, \$9.85; Hamilton-Guelph-Elmira, \$8.53; Toronto (Guelph) Suburban, not given; Niagara, St. Catharines & Toronto, \$7.04.

Mr. Arnold gives, in his report, a total expected average passenger revenue over the whole system in 1925 of Interurban, \$8.36 per capita, and Suburban \$10.30 per capita. By divisions he gives: For Toronto-St. Catharines, Interurban, \$7.13 and Suburban, \$23.70 (for tributary population in and around Toronto). For Toronto Eastern, Interurban, \$14.40 and Suburban \$9.98 (in and about Toronto). For Hamilton-Guelph-Elmira, Interurban \$5.93, and Suburban \$5.23. For Toronto (Guelph) Suburban, Interurban, \$8.95, and Suburban \$14.18 (in and about Toronto). Niagara, St. Catharines & Toronto, Interurban \$7.38, and Suburban \$7.27 (in and about St. Catharines, Niagara Falls, etc.)

It will be useful to compare these per capita passenger earnings with some of the United States railways that have already been under discussion. Taking, for instance, on the Interurban business alone, over the entire Hydro Radial System of 330 miles, Mr. Arnold puts in a figure of \$8.36 per capita, for an interurban population of over 400,000, excluding the population of the

terminal City of Toronto. Turning to the schedule in Exhibit 221, put in by Mr. Wilkinson, a Hydro Engineer, it will be found that a combination of those five interurban roads, the Detroit United and the Lake Shore Electric, joining the very large cities of Detroit and Cleveland with Toledo and smaller ones intervening, together with the Northern Ohio Traction (including Akron and Canton, and including their combined urban population of 295,000), and altogether having a total population of 1,205,000 served by 593 miles, have an interurban passenger revenue of only \$8.12 per capita, excluding the population of the two large cities of Detroit and Cleveland. Compare the best division of the Hydro, viz., Toronto-St. Catharines, 72 miles long, which Mr. Arnold expects to earn in 1925 an interurban revenue at the rate of \$7.13 per capita, exclusive of Toronto, with:—

(1) The best Division of the Detroit United, viz., Detroit-Toledo, 52 miles; this earned an interurban revenue in 1920 at the rate of \$4.30 per capita, exclusive of Detroit, and

(2) The Lake Shore Electric, Cleveland to Toledo (total 171 miles); this earned an interurban revenue in 1920 at the rate of \$5.01 per capita, exclusive of Cleveland. (These figures from Mr. Rifenberick's statistics Exhibit 228).

With respect to the suburban earnings it is to be observed that the rate per capita for the three lines entering Toronto are Toronto St. Catharines, \$23.70; Toronto Eastern, \$9.98; and Toronto Suburban \$14.18, according to Mr. Arnold. It is to be expected, of course, that these will be much higher than the interurban rates, even considering the large tributary populations in city and suburbs. They do not appear so much out of line when compared with short roads or divisions doing suburban business out of comparable centres. In Toronto, the existing roads are now doing a similar business as, see Mr. Wilkinson's evidence, Exhibit 222; the Glengrove Division of Metropolitan (North) had \$14.45 in 1920; the Mimico Division to Port Credit (West) had \$20.50 (with population tributary of 13,920) and the Scarboro Division (East) had \$11.92.

Considering all these features of the expected Passenger Revenue in combination, we are of opinion that these revenues are too optimistic and not likely to be realized. They are based:—

(1) On populations which do not yet exist, and hence are at least uncertain; they are  
 (2) Higher than most roads of general similar passenger type now in operation, and are second only to those operating out of very large cities where the riding habit is higher, they  
 (3) Expect passenger revenues per capita, especially on the interurban portions, which are in excess of those of some of the best passenger earning roads, operating out of cities like Detroit and Cleveland, and they

(4) Expect to obtain these high earnings within the first year of operation compared with electric roads which have developed their business over a period of from 10 to 20 years.

#### (d) Freight Revenue

A large portion of the revenue of the Hydro Radial System is expected to be derived from freight business. The estimate of the Hydro Engineers, submitted in October, 1920, showed expected revenue from this source to be 35.6% of the whole for the year 1925; Mr. Arnold's estimate showed 30%.

The basis of computing the freight revenue has, in both cases, been almost entirely out of population and, like the passenger revenue, it is computed on the expected population in 1925. In this manner it too depends upon the increase in populations, such as shown in the previous table.

At various times during the periods of investigation the Hydro Engineers made surveys of the area in different localities to endeavour to find the amount of freight moving, and from this to make an estimate of how much the Hydro Radials might expect to obtain in the way of business as their proportion, in case they were constructed. In the preparation of the original estimates by the Hydro, we consider that too much dependence was placed on the result of inquiries and surveys by men sent through the territory in question to inquire and ascertain this probable freight expectation in carload and less than carload classes. Too little attention was given, so far as we can see to endeavouring to obtain statistics of the actual freight business being done in the territory by the existing steam and electric railway transportation facilities.

It was suggested in evidence that when making the investigation, the Hydro Power Commission could not obtain from the existing steam and electric railways operating in the territory anything like full details of the business they were doing as they would not disclose them, and



that so far as these were concerned they had to depend on the annual but somewhat incomplete public reports. Even after this inquiry was well advanced, and this Commission had obtained evidence and exhibits from officials of such steam and electric railways in the territory, the Hydro Engineers, including Messrs. Arnold and Sager, in continuing their own inquiries, do not appear to have availed themselves of this advantage.

On the other hand reliance seems to have been placed by the Hydro Engineers and by Mr. Arnold and his assistants mainly upon the local inquiries and surveys. While these were made with care and were continued even up to the closing days of the inquiry and submitted in evidence with some detail, the figures resulting in so far as the proportion expected by the Hydro Radials are concerned, seem to be higher than, and out of line with experience and the usual or rational mode of distributing freight, as for instance, between the different parts of the System. Reference might here be made to an error made in the process of apportionment in the case of Guelph, which was discovered near the close of the inquiry in Mr. Arnold's report, that such an error is a possibility by this method of survey and apportionment leads to the belief that such methods cannot be relied on. The existing railways have well established customs and customers, they have been a long while in possession of the freight field, and it is unlikely that they will readily submit to such division of the business as is indicated in this method of apportioning, especially in the carload and moderate haul business that the Hydro Radials expect.

It is natural, as in other phases of the inquiry, that comparable conditions on railways now in operation in the territory or elsewhere, should be examined to ascertain if any expected performance by this system can be deduced as to freight business. In some respects this has been difficult because there are hardly any electric railways that have been doing freight business that is even comparable in proportion to the high expectation of the Hydro Radials.

The fact is that many electric railways in the United States, appear to have tried to develop freight business, but according to the evidence only a few have succeeded in getting beyond an express, and what they call despatch freight business of like character. They all appear to have come up against the competition of steam roads in so far as carload and even a good deal of L.C.L. business, and unless they are in a very favourable position geographically for hauling freight into some exclusive territory or in acting as a switching medium, they have not found it encouraging. Several roads, e.g., Detroit United and Lake Shore Electric, find that if they could get a suitable route into the large terminals, as for instance, to the centre of Detroit or centre of Cleveland, over which to haul freight cars, and then get a suitable freight terminal therein, they would improve their position with regard to freight, especially in L.C.L. and express business. Certain roads have advantageous terminals of this nature such as the Northern Ohio in Cleveland, and the Terre Haute, Indianapolis and Eastern, at Indianapolis but it is to be observed that these are almost entirely for L.C.L. and express or despatch freight. On the other hand, the Chicago North Shore, which is very active in an endeavour to develop its freight business, not being able to get into the heart of the city, stops its freight at a terminal at the outskirts and distributes it into the city by motor truck.

But the Hydro Radials expect to do a great deal more than handle L.C.L. and Express business. The handling of carload freight, both short and moderate hauls, and even the handling of portions of long hauls with the intention of handling these cars to the steam road to carry to their distant destination, form a large and very necessary part of their expected business. In this carload freight they are bound to come very sharply into competition with the existing steam roads, and even with electric roads such as the Grand River and the Lake Erie and Northern, which work as feeders to the C. P. R. It is on this basis that they expect to secure what has been termed co-operation with the Canadian National Railways already referred to whereby, if the shipper agrees, they expect to carry long haul freight as far as possible on the Hydro System and then hand it over to the Canadian National to continue the haul. On the other hand, in the reverse process, the Canadian National is expected to carry its long haul freight to its destination within the Hydro territory. In other words, to quote the evidence of Dr. Reid, Minister of Railways and Canals of Canada, referring to the Hydro System, and more particularly to the N. St. C. & T. and Toronto Suburban, "Those railways were important feeders of the Canadian National Railways and...the freight would be interchangeable," and again referring to haul over the Canadian National, "we would take it over our line as far as we could.....we would take every foot of haul we could on our own line."

Referring to carload freight expectations attention may be called to Mr. Arnold's evidence in which, after speaking of frequent passenger service supplemented by frequent and prompt deliveries of less than carload freight, he says, "In addition, it is probable that as stated above, certain amounts of carload freight can be conveniently and expeditiously handled." From this Mr. Arnold apparently looks upon revenue likely to be derived from carload freight as a rather secondary matter.

Following is a statement of the revenue expected to be obtained from freight of all classes. Both estimates are given for comparison:

#### FREIGHT REVENUE EXPECTED IN 1925.

	Hydro Estimate	Mr. Arnold's Est.
Toronto-St. Catharines Div. ....	\$1,408,250	\$1,092,000
Toronto Eastern Div. ....	225,000	185,000
Hamilton-Guelph-Elmira Div. ....	453,580	349,000
Toronto Suburban (Guelph) Div. ....	276,400	126,000
Niagara-St. Catharines & Toronto.....	514 327	505,000
	<u>\$2,877,557</u>	<u>\$2,257,000</u> Note (B)

Note (A) In the foregoing the freight rates used are those which were in effect on steam railways in the region of May, 1920.

Note (B) This figure of \$2,257,000 will require to be reduced by \$68,900, by reason of a mistake made in Mr. Arnold's estimates as to freight expected from Guelph, pointed out by counsel and corrected near the close of the inquiry by Mr. Sager, who was recalled and explained the nature and effect of the mistake (Page 12433). The discovery of so extensive an error near the end of the inquiry (almost accidentally discovered) raised some additional doubts as to the accuracy of the estimates, particularly in this matter of apportionment already referred to. It should be added in fairness that Mr. Sager made a further hurried examination of the Arnold estimate and found no other errors of like nature.

#### FREIGHT REVENUE PER ROUTE MILE EXPECTED IN 1925

	Hydro Estimate (on 323 miles total route)	Hydro Estimate (on 288 Route freight) Miles for	Mr Arnold's Estimate (on 288 Route freight) Miles for
Toronto-St. Catharines Div. ....	\$19,360	\$19,360	\$14,800
Toronto Eastern Div. ....	5,110	5,110	4,200
Hamilton-Guelph-Elmira Div. ....	6,171	6,171	4 800
Toronto Suburban (Guelph Div.) ....	4,021	5,025	2,300
Niagara St. Cath. & Toronto .....	7,994	10,700	10,500
Average over System .....	<u>\$ 8,909</u>	<u>\$ 9,990</u>	<u>\$ 7,800</u>

These existing roads will have freight route mileage of less length than passenger, viz., about 55 for Toronto Suburban and 48 for N. St. C. & T.

With reference to the foregoing tables it is to be observed that unlike the passenger revenues Mr. Arnold does not closely agree with the Hydro Engineer's expectancy in freight revenue. Mr. Arnold expects a total freight tonnage per year on the entire system of 1,210,000 in 1925, of which 985,300 will be carload tons and 224,700 L.C.L. tons, from which he hopes to get revenues of \$1,281,000 and \$976,000 respectively. In the case of the Hydro estimates the expected tonnage was approximately 1,635,000 tons, of which about 1,032,000 was carload, and 603,000 L.C.L. (after making arbitrary adjustment of N. St. C. & T.) It is thus seen that Mr. Arnold, while expecting a less total tonnage than the Hydro estimate is assuming a larger proportion of carload freight. It is in this feature, the more uncertain element of freight earning possibility, that doubt is most likely to arise where the Hydro Radials will be in such keen competition with the steam roads that are specially interested in retaining their long and moderate haul carload freight business.



The rates at which it is expected to carry freight are an important factor. Rates which would be obtained for L.C.L. freight would, of course, be comparatively high and much discussion arose as to the probable average per ton mile. It is to be expected that good average rates can be obtained for this class of business as it is in this that the electric railway can best compete with steam roads, the speed and frequency being advantageous. Mr. Arnold expects to obtain earnings on L.C.L. at rates varying from \$3.64 per ton on the Toronto St. Catharines, and \$4.05 on the Toronto Suburban down to \$1.99 per ton on the Niagara-St. Catharines and Toronto, the difference being, of course, due to classes and length of haul.

The retention of the freight rates of May, 1920, as a stable basis for future business is none too certain. It is true that prices today are higher, but they will doubtless return, and possibly in time, to figures below those of May, 1920. In this varying process a road which is run "at cost" must be careful that it may not be forced to keep its rates up, and thus drive away business to competing roads. The ultimate lowering of freight rates will doubtless have to be faced throughout the country; in considering this, while there might possibly be a corresponding reduction in cost of freight, at operation, it was brought out in evidence that it would be at a much less proportion than the lowering of the rates.

In carload freight the situation is more complex on account of the long haul question referred to, and the conditions of competition that will be bound to rise. On the Toronto-St. Catharines line, with 72 miles length, Mr. Arnold expects an average of 85 cents per ton revenue. It is expected that a large part of such carload freight will be low class, such as coal (of which Toronto, for instance, uses about two million tons annually). Not only must all the anticipated L. C. L. freight be secured, but the entire carload freight, the more difficult to obtain, is equally essential to make the system pay (Mr. Gaby and Mr. Sager). The system can only pay if, to the usual traffic of an electric railway doing (interurban and suburban passenger and L.C.L. freight and express) there is added a large amount of carload freight. From the competitive point of view there was much evidence as to what the effect would be on the carload business by the Hydro hauling over its own lines and then handing cars to the steam roads for long hauls. Such an arrangement involves a double freight rate and other complications which shippers (Messrs. Hogg and Watts) said were undesirable from their standpoint.

The Hydro Engineers and Mr. Arnold and his assistants have, as before stated, built up the whole expectation of freight tonnage of both classes upon the basis of tonnage per capita. From all the evidence submitted this appears to be a basic assumption not only novel, but at variance with practice and traffic experts. Mr. Gaby and Mr. Hewson both stated that they introduced it in their computations by analogies with tonnages carried on roads in operation and Messrs. Arnold and Sager followed this method and brought new figures in an attempt to justify the rates used. All other witnesses, those actually engaged in freight traffic, said this was not the practice and that they could see no relation between freight and population on any railroad doing a mixed local and through freight business. In our opinion, in view of the evidence, there does not appear to be any relation which can definitely be set up because of the great difference in occupation, character and location of the population and the resultant nature of the communities in which they live and work. To quote Mr. Gutelius, "It would depend on whether that population is engaged in an industry which creates traffic or whether it does not." Also Mr. Bailey says, "I have never been able to establish any connection between freight revenue and the population." Mr. Coen says "Population is not a controlling factor in freight earnings." Mr. Gutelius also observes that railway men would not go into a railroad proposition on the basis of assuming how much freight may be reasonably expected from a given population, and that population is not necessarily the source of freight, and he also says again, referring to this, "I do not feel that that is the way to arrive at the volume of freight any more than it would be if you said that there were so many red headed people in a certain district and they ought to give you so much freight because of the color of their hair."

The proportion of freight expected to be obtained for the system from each locality to be served by the Hydro Radials has been arbitrarily fixed in the freight survey and largely by the person who made the survey as already described. This at best could be only a guess based upon such general information as might be gained by personal interviews with shippers. It does not follow that in actuality, after the Hydro System is in operation the expected proportions will be obtained even if promised in advance by friendly and public spirited citizens. Many factors

enter into the processes of how shippers will route their goods, and into questions of local or other advantages.

Referring for instance, to Mr. Arnold's report, it has not clearly been shown why the Hydro System should expect in towns like Galt, Preston and Hespeler, to secure 65% of the carload freight to and from the N. St. C. & T. District (as St. Catharines, Welland, etc.), amounting to the large tonnage of 17,600 per year (table B-14); or why, in cities and towns like Kitchener, Waterloo, Guelph and Oshawa, they should get 50% of the total carload freight moving to St. Catharines, Niagara Falls and Welland (Table B-14) based on the survey of 1918, and involving for these four towns a total expectation of freight of 38,600 tons at a rate varying from 0.72 to 1.33 tons per capita. All of these cities have active steam roads, both National and C.P.R., and as for Oshawa, Mr. Bell of the General Motors, the largest industry, says that 75% of their motor output shipped within a radius of 150 miles, goes out on their own wheels. So, also, it is asked why should the Hydro System expect to carry carload freight destined for the United States out of Kitchener and Waterloo, 15% of whole, viz., 26,500 tons (Table E-11) or out of Guelph 15% of the whole, viz., 11,200 tons (Table E-12) or out of Galt 20% of the whole, viz., 12,400 tons (Table E-13) or out of Oshawa 15% of the whole, viz, 11,200 tons (Table C-8). Or why should carload freight destined to be taken from cities like St. Catharines and Welland to the extent of 33 $\frac{1}{3}$ % of the whole, viz., 24,000 tons (Table B-14). At all of these places there are the regular steam roads, the National, the C. P. R. and the T. H. & B. whose great aim is to secure long haul carload freight.

As to Toronto carload business in coal, for instance, Mr. McGill, a coal dealer, testified that 90% of the dealers in Toronto have their coal come from the frontier over the G. T. R., and he further said that if the Hydro Radials carried any of this tonnage they would have to hand it to consignees in Toronto over the G. T. R. sidings.

As to the hope of the Hydro Radials obtaining the various expected proportions of freight business as indicated, it must be borne in mind that it proposes to come into the field as an entirely new transportation system. It is clear that in Toronto, however favourably situated in location along the front, it has to compete with industrial and other sidings already there, established by the steam roads many years ago (the number of these has already been given elsewhere). So also with entering other cities and towns. It is true that in the case of the Niagara, St. Catharines and Toronto, the Hydro Power Commission proposes to buy a going concern, and so also to buy the Grand Trunk branch, Galt via Kitchener to Elmira, but it is not yet clear what actual working conditions may be imposed as to interchange, and use of industrial sidings. In the group of towns, Galt, Kitchener, Preston, Waterloo, etc., the steam railways are thoroughly established, and they will not easily relinquish any portion of their freight business.

With regard to expected freight revenues we conclude from the foregoing that they are too speculative and, under the conditions in which the Hydro Radial system will have to operate, cannot be expected to be realized. The method of computing freight tonnage on population does not appear practical, according to the evidence, and it is unwise to depend solely on this method. While the freight survey in the cases where thoroughly made, is most useful, it is insufficient in itself and should be supplemented or supported by actual tonnages moving on other railways in the region. The arbitrary manner in which various guesses were made as to the proportion of freight likely to be secured in each town, seems an unsafe procedure, especially where the margins concerned are so slender as the expectations of this system are shown to be. The expectation that the Hydro Radial System will suddenly enter each of these cities and towns as a newcomer, and as it has been expressed, "elbow its way" into the local freight business to the extent expected against established roads, appears highly improbable of attainment for some years to come.

#### (e) *Operating Ratio.*

Operating Ratio is a term applied to the ratio between operation costs and total revenue. Mr. Friend, Auditor of the Canadian National Railways, says it is "what it costs to do the work for every dollar earned." For certain purposes, it is of little value, at all events so far as this inquiry is concerned, as for example in a comparison of net earnings, but for one purpose it seems to us of importance. In recent years this operating ratio has steadily and consistently risen on electric railways until now, according to the general testimony of the experts, it has arrived at a point, namely about 65 to 70%, below which they do not see how it can be bettered



in the near future. If for safety's sake we take a minimum of 65% and compare it with the estimated operating ratios which the Hydro in their estimates indicate for their first year of operations in case the radial railways are constructed, it seems significant.

The Hydro Radials proposed operating ratio for the entire system is 55.7%. Such a remarkable divergence between expectations and existing facts could only be anticipated with any show of reason, as a result of one or other of two things, namely, lower operating costs than usual in practical experience, or higher anticipated revenues than are found under existing conditions. Both these lower costs and higher revenues are found side by side in the Hydro Estimates.

The expectation of such an operating ratio would seem to be contrary to experience, and impossible of attainment. When a new system of Electric railways is under consideration, and it is found that their estimates and proposed operations are such as to cause them to expect and fix 55.7% as their anticipated operating ratio in the first year of operation of the system, or as low as 48% on one division (the Toronto-St. Catharines), it at once attracts attention and raises doubt.

Considerable criticism of experienced experts has led to the belief that the operating ratios should be increased and the question arises as to how this may be done. It cannot be through the decrease of operating expenses below what is generally accepted as normal rates on existing roads; there is no reason to expect that this road will be operated more cheaply than the average of existing roads whose experience is actually available and not speculative. It is not through the increase of revenues, for there is nothing in the project beyond the combination of a variety of business which will make the system unique, and like nothing "yet seen anywhere else" that would justify anticipated revenues so in excess of those on roads through territories at all comparable.

The expected Operating Ratios of the System and its divisions as put forward by the Hydro Power Commission in September, 1920, and Mr. Arnold in May, 1921, are as below:

#### EXPECTED HYDRO RADIAL OPERATING RATIOS FOR THE YEAR 1925

	Hydro Estimate	Mr. Arnold's Estimate
Toronto-St. Catharines Division .....	48 %	51.6%
Toronto Eastern Division .....	49.5%	53.4%
Hamilton-Guelph-Elmira Division .....	61.2%	65.7%
Toronto Suburban (Guelph) Division .....	64.7%	76.7%
Niagara St. Catharines & Toronto .....	65.6%	72.1%
AVERAGE OVER SYSTEM .....	55.7%	60.6%

As already stated it is difficult to compare the performance of two electric railways by means of their operating ratio, as much depends upon conditions surrounding their operation, the territory through which they pass, the nature of their business, etc. At best, however, there are not very great differences in most roads of a high class doing an interurban and suburban business along with some freight. This will be seen in the table below of various roads in Canada and the United States. In connection with the operating ratios of these operating roads it is to be observed that in evidence Mr. Rodger said (7608), "I think the day of 50% operating ratio is not in sight," and Mr. Todd (11916) says "If you wanted me to give the last limit I dare, I would say 65 to 67 would be about as low as I dare take a chance, excluding taxes." He also says he does not know of any roads that are doing 55 per cent.

#### OPERATING RATIOS ELECTRIC RAILWAYS IN CANADA AND UNITED STATES (Excluding taxes)

CANADIAN ROADS:	Per Cent.
1919 Hamilton (Radial) to Brantford .....	62.7 Coleman
1920 London & Port Stanley (without Park) .....	68.8 Richards
1919 Niagara, St. Catharines & Toronto .....	74.7 Friend
1920 Lake Erie & Northern .....	75.5 Kirkwood
1920 Grand River .....	78.9 Kirkwood

## AMERICAN ROADS:

1920 Terre Haute-Indianapolis .....	60.0	Rifenberick
1920 Detroit-Toledo .....	65.2	Rodger
1920 Lake Shore Electric .....	70.4	Rifenberick
1919 Union Traction .....	72.0	Feustel
1920 Washington-Baltimore .....	73.3	Price-Waterhouse
1920 Chicago North Shore .....	76.8	Thompson
1920 Detroit-Rapid .....	76.9	Rifenberick
1920 Detroit-Jackson .....	78.3	Rodger
1919 Indiana Service Corporation .....	79.0	Feustel
1920 Buffalo-Niagara Falls (High Speed) .....	79.3	Chavel

From the foregoing table of roads already described and discussed herein, it is obvious that the Hydro Radial expectations of Operating Ratio are entirely out of line with existing roads in practical experience.

It is evident that considering the foregoing roads, the operating ratio need have no relation to the net earnings as the operating ratio may vary from 60 to 80 per cent. and yet the net earnings may be the same. The point is, that to get an extreme operating ratio, very low (or very high), there must be corresponding extremes in either total revenues high (or low) or operating costs low (or high). In the case of the Hydro Radial project these extremes in their expectations have already been pointed out and by comparing the two estimates submitted it is evident that Mr. Arnold realized these inconsistencies when he uniformly raised his operating ratios above the Hydro estimates to the extent he did.

In our opinion the expectation of realizing such low operating ratios, in either estimate in the light of experience, raises grave doubts as to the correctness both of the operating expenses (which should doubtless be higher), and secondly, anticipated revenues (which doubtless should be lower). If both of these were adjusted to conform more to real experience, the operating ratios would undoubtedly be very much higher and more in line with practice.

(f) *Fixed Charges and net Income:*

As previously stated, the proposed costs for construction are exceedingly high. This immediately loads the project with very high fixed charges for interest. At this time and for some years to come interest rates on bonds issued or endorsed even by such a wealthy province as Ontario, will be at a high rate, at least 6% as now, and, according to recent experiences in sales and the evidence given, this may be appreciably exceeded. This condition of high fixed charges was recognised by Mr. Arnold, when, in making his estimates submitted to this Commission nine months after those of the Hydro engineers, he reduced the construction costs of the project put forward by them by 15% owing to declines in prices of materials and labour which he expected would be in effect if the project were proceeded with. On the other hand, Mr. Arnold, recognising what, in his opinion, were defects or omissions in the original Hydro project felt it necessary to make large additions in the costs on this account (e.g. Toronto subway terminal and double tracking) and thus brought back the fixed charges to an amount practically the same as the Hydro's. (In the case of his Supplementary Report, which is based on the same plans as the Hydro's, these later additions are not included and his fixed charges are consequently less.) The comparisons of the fixed charges in the Hydro and Arnold estimates are shown as follows:—

## FIXED CHARGES FOR YEAR 1925.

(Includes Interest at 6% & Taxes; Excludes Depreciation).

	Hydro Estimate	Mr. Arnold's Estimate
Toronto-St. Catharines Div. ....	\$1,307,573	\$1,246,000
Toronto Eastern Div. ....	580,851	619,000
Hamilton-Guelph-Elmira .....	441,573	370,000
Toronto Suburban (Guelph) .....	182,126	220,000
Niagara-St. Catharines & Toronto.....	272,774	265,000
<b>TOTAL FOR SYSTEM .....</b>	<b>\$2,784,897</b>	<b>\$2,720,000</b>



It is to be pointed out that again Mr. Arnold has brought out his total to almost the same as that of the Hydro, although differing materially in details. As above noted, the differences relate mainly to Toronto, especially to the Terminal subway scheme for which the increased fixed charges are divided amongst the divisions to use it; this tends to wipe out the advantages of the general reduction of costs over the whole system.

It is also to be pointed out that the interest charges on the two lines proposed to be acquired from the Dominion Government are very low compared with the other lines to be newly constructed. This is significant of the cheaper cost of the lines now actually operating compared with new ones on which so much money is proposed to be spent. The total fixed charges of the Hydro System (as in Hydro Estimate) are 34.4% of the Total Revenue. This is significant of the high relative cost of the project and forms a very great burden on the financial possibilities of the system. It is very marked when this figure is compared with those of other high class systems, for instance:—Washington-Baltimore in 1919 had a similar ratio of 19.5%; Lake Shore in 1919 had 21.1%; Union Traction 1919, 28.6% and Northern Ohio, 1919, 15.1%.

The Net Income or Surplus arising from the operation of the proposed System are, under any circumstances, comparatively small. The Hydro Estimate submitted in October and September, 1920, and against which much criticism was offered for its high revenue, low operating costs and high fixed charges, brought out a net income or surplus of about 10% of the total revenue or "business done". Mr. Arnold, in his estimate, submitted in May, 1921 with lower revenue, higher operating costs and slightly lower fixed charges, brought out a net income of only about 3.3% of the total revenue, and when still further reducing this by reason of the mistake made in the revenue (as explained by Mr. Sager on his recall in evidence before the Commission at the termination of the inquiry) *this is only 2.9%, an exceedingly small margin.* farm produce more extensively than at other seasons. I am unable to distinguish between truck-

Following are statements of Estimates by both Hydro and Mr. Arnold to bring out the respective Net Incomes. In considering these together it is to be borne in mind that while there appeared to be no definite adoption by the Hydro Commission of Mr. Arnold's differing scheme and estimates, this was put forward by the Hydro Commission as a later and more considered opinion of a staff of engineers which had been working on the revision of the scheme for some nine months since the start of this Inquiry, and we believe it to be intended to be so considered. We have thought it fair, however, to deal with these in conjunction wherever possible.

#### HYDRO COMMISSION'S ESTIMATES. REVENUE, OPERATION AND NET INCOME FOR YEAR 1925.

	Total Revenues	Operating Costs	Fixed Charges	Net Income
Toronto-St. Cath. Div. ....	\$3,152,926	\$1,514,905	\$1,307,573	\$330,448
Toronto Eastern Div. ....	1,190,000	589,411	580,851	19,738
Hamilton-Elmira Div. ....	1,322,027	809,045	441,573	71,409
Toronto Suburban Div. ....	1,040,468	673,326	182,126	185,016
Niagara, St. Cath. & Tor. ....	1,378,520	904,655	272,774	201,091
	<u>\$8,083,941</u>	<u>\$4,491,342</u>	<u>\$2,784,397</u>	<u>\$807,702</u>

#### MR. ARNOLD'S ESTIMATES

##### REVENUE, OPERATION AND NET INCOME FOR YEAR 1925

	Total Revenues	Operating Costs	Fixed Charges	Net Income
Toronto-St. Cath. Div. ....	\$ 2,871,000	\$1,480,000	\$1,246,000	\$ 145,000
Toronto Eastern Div. ....	1,306,000	697,000	619,000	10,000 Def.
Hamilton-Elmira Div. ....	1,065,000	700,000	370,000	5,000 Def.
Toronto-Suburban Div. ....	867,000	654,000	220,000	7,000 Def.
Niagara-St. Cath. & Toronto ....	1,413,000	1,019,000	265,000	129,000
	<u>\$ 7,522,000</u>	<u>\$4,550,000</u>	<u>\$2,720,000</u>	<u>\$ 252,000</u>

Def.—Deficit.

Note:—From this Total Net Income there should be deducted \$34,450 due to an over estimate in Freight Revenue which Mr. Sager (Page 12,433) explained in evidence (being 50%

of an error made in Guelph.) *This will reduce the Net income in Mr. Arnold's Estimate to \$217,550.*

In addition to the foregoing there is still another estimate, Mr. Arnold's "Supplementary," which is worked out on the same basis and scheme as the Hydro Engineers but in so far as Toronto and the lines leading into it are concerned has not the advantage of Mr. Arnold's Subway Terminal but provides for a surface loop scheme at Bay Street. This naturally provides for less capital cost and fixed charges with less resulting revenue and less operating costs than the former. By this scheme the Total Net Income for the entire system is even less than that provided for in Mr. Arnold's Main Report, that is to say: For Toronto-St. Catharines Division a Net Income of \$151,000 (or \$6,000 more income); For Toronto Eastern a Net Deficit of \$62,000 (or \$52,000 more deficit); For Hamilton-Elmira Division a Net Deficit of \$5,000 (the same); For Toronto Suburban Division No. Deficit (or \$7,000 less deficit) and for Niagara-St. Catharines and Toronto Division a Net Income of \$129,000 (the same) or a Total Net Income for the Entire System of \$213,000. From this as before there must be deducted the \$34,450 in error and the corrected Total Net Income under this "Supplementary" Scheme reduces to the small amount of \$178,550.

Comparing the two foregoing tables of Estimates the essential differences on which Mr. Arnold based his very material reduction of the Net Income can readily be seen in the light of the previous explanations. This great reduction made by Mr. Arnold again discloses the difficulty which he and his Assistants found in reconciling various estimates and factors presented in the Hydro Estimates which had already been brought to the attention of this Commission in October, 1920. These differences too assist in understanding the statement made late in his evidence by Mr. Arnold when referring to studying and approving the Hydro project and estimates, (Page 9993) "I started out with no intention of approving them; in fact I was quite sceptical and thought I would have to turn it down," and again Mr. Arnold in answer to the Chairman's question (page 9994) "What were the things you discovered which caused the changes in your initial view," answered . . . . "We found more freight, my recollection is, in some instances, but we did not find as much passenger business, as I recall it, and we found we had to make certain additions in investment here and there to carry the schedule we figured out, and figured with that additional schedule we would earn more money in spots, so the net result was, as I say, that it reduced the gross earnings in the Hydro estimates, as I saw them, and a somewhat increased operating expense on our part and a lower net than the Hydro Commission's figures as we saw them. I told you earlier that we had had a great many strong arguments with the Hydro people on their figures and landed on the best conclusions we could."

The foregoing should be read along with the final words in Mr. Arnold's Report in which he describes what he has arrived at as his "best conclusions" and these, considering that he could hope for a surplus only about one quarter of that expected by the Hydro Engineers, may reasonably be taken as the strongest endorsement he is able to make. " . . . . They lead to the conclusion that the project herein outlined as a whole is feasible and that if constructed and operated under competent management with the support of the communities served, its success can be reasonably expected." This conclusion speaks for itself.

It is fully evident that these expected amounts of net income do not present a rosy prospect for financial success even as they stand; a margin of 2.9% of surplus is a very slender inducement on which to embark on a project of such magnitude and the fact that it is to be owned and operated at the public expense is all the more reason that a conservative margin of surplus should be assured.

But it is much more evident from the foregoing discussion of the various factors which produce this small surplus, that even this is impossible of realization especially when all these factors are taken in conjunction or are acting simultaneously as they undoubtedly would. These various factors comprising cost of construction and fixed charges thereupon, passenger revenue, freight revenue and operating costs must all work harmoniously or consistently and it is only by such moderate and rational amounts or rates, in comparison with experience and performance of successful electric railway systems or the experience of men actually operating them that the probable financial success of this proposed enterprise can be measured.

With such dangerously small margins of Surplus or Net Income anything may happen. It is true that it is proposed to operate this system at cost, that there are no carrying charges



except interest on bonds or other borrowed money, and there are no dividends to be paid. But such a slender margin is too slight for reasonable safety and if the usual rules of business were applied in this to determine whether it is a sound financial project, it is quite obvious that it could not be looked on favorably or endorsed. There are too many chances for something to happen on the wrong side of the ledger. A 3% decline in the revenue would alone bring a deficit. A 5% increase in operating expenses would alone bring about a deficit. A moderate combination of both of these would easily produce a deficit. Even the increase in operation costs per car mile alone, of 1.5 cent would produce a deficit.

To enable the proposed electric railway system to be self-supporting, it would have to pay annual carrying charges on construction costs much higher than usual and would have to operate at annual operating charges much lower than normal, or than other experienced operating managers have been able to, are able to, or expect to be able to operate at. It would require to secure revenues, passenger and freight, but particularly freight, (after allowing all reasonable advantages attributable to the territory, the population, the rapid transit entrance to Toronto, the element of cheaper power, cheaper operation costs per car mile, smaller operating ratio, and the like,) which experience has shown have not been secured and will not be realized in any territory which can be regarded as at all comparable.

It appears to us in the light of all the evidence that such expectations could not be realized and the system, if constructed, could not be operated so as to be self-supporting.

## XI. THE FUTURE AND POSSIBLE EXTENSIONS

In response to the requisitions by the Commission the Hydro Commissioners' Engineers prepared their estimates with a view to periods of time after the system is first put into operation. They assumed that the whole system would be into complete operation by the end of 1924, and that the year 1925 would be the first year of operation. They also, as requested, made estimates as for the year 1930, and 1935. In these, they showed, how in their opinion, it would be necessary from the business which they expected to develop to make certain additions in double tracking, equipment, buildings, etc. So also they credited the system with increased revenue dependent as before on the expected increases in populations in the two quinquennial periods. As in the estimates for 1925, freight revenue was anticipated in similar proportions in the various towns, the Hydro system expecting to gradually increase its business notwithstanding the competition of the steam and other railways. Generally speaking, this increase of revenue is uniform, the increases being roughly about 20% per five year period.

But the large question of future extensions lies further afield. The question is to what extent the system as now proposed will be extended to other localities and regions during say the first five year period.

If once the system were constructed it is reasonable to conceive an immediate demand being made by those municipalities on its fringe for extensions great and small and the question would at once be up as to policy in regard to these. It was said in evidence by Mr. Gaby that the Hydro Commission would, of course, not advocate an extension that would not offer good prospect of being self-supporting. This is the principle said to be followed in extensions to the present Hydro Power system. With respect to this, it is for consideration whether and how far the Commission or the Government might be able to resist insistent demands for such extensions or for an extension which, while not paying locally might be advocated as necessary for the general benefit of the system at large. It must be kept in mind that hundreds of miles of surveys with reports and estimates have been made throughout the Province. Having this in view it would be only natural that if and when a scheme so large and costly as this had received the financial endorsement of the Province, many of the municipalities would immediately request and insistently demand that a like assistance be accorded them.

The Government memorandum has raised this question in the light of possible extensions in different directions to widely separated localities. If such should happen it might be found to have committed the municipalities and the Province to a huge province-wide system, with uncertain results and far-reaching financial effects of a dangerous nature.

The Dominion of Canada is a country of great extent and resources. The Province of Ontario is a rich and prosperous one, and in the views of its citizens still the greatest province in the Confederation. The City of Toronto is having a rapid growth and expansion. Nothing

should be done in the way of too suddenly checking expenditures on public works of actual necessity.

The public expenditures to which the Dominion, Province and City are committed at the present time, run into a large sum:

The Chippawa Power .....	\$60,000,000
Harbor Improvements .....	\$25,000,000
Good Roads .....	\$25,000,000
Toronto Clean-up .....	\$32,000,000
(much of which may be said to be in the way of readjustment of securities and endorsements.)	

Is it wise, however, in the face of all these, for the Province of Ontario to consent to pledge its credit to an additional \$45,000,000, in connection with the project under consideration?

## XII. HIGHWAY CONSTRUCTION AND MOTOR COMPETITION

In instituting this investigation, the Government intimated in its statement that "The Province is already committed to a good roads policy, involving a large expenditure." This expenditure, according to the testimony of Mr. W. A. McLean, Deputy Minister of Highways, is \$25,000,000 during five years, on a total length of 1800 miles. The Province is going on with this enterprise on the understanding that the Federal Government will grant a subsidy of not less than \$1,200,000 per annum and is also assessing the counties their respective shares of the actual construction on a percentage basis. In addition to this programme, the counties are spending, at the present time, \$3,500,000 annually on county roads, and the townships are likewise spending \$2,000,000 on township roads over and above the statute labor requirements. The above good roads extension has a marked bearing on the problem under investigation, inasmuch as the main Provincial Highways parallel the proposed radials throughout. From Bowmanville to Toronto, the Kingston Road is well within the area to be served by the Toronto Eastern. From Toronto to Hamilton, are the Toronto-Hamilton Highway, and the Dundas Road—one on either side of the proposed radial; from Hamilton to the frontier is a Provincial Highway serving the same centres as the radials; from Hamilton to Galt and branching to both Kitchener and Guelph is a highway running quite close to the radial most of the way. Construction will begin next year, according to the plans settled upon by the Government on a highway paralleling in a similar manner the Toronto Suburban.

Mr. Royce, Manager of the Toronto Suburban, testified that "We are suffering particularly now, from competition with the jitney service, a somewhat effective competition on both the Lambton and Dundas Roads. The local jitney service has effected local earnings in the neighborhood of \$50.00 a day. This increased up to a year ago, but has been about stationary since then. There is not a very good motor road to Guelph, and a small amount of motor traffic there—nothing of a commercial nature." This will afford some indication as to the bearing of motor competition even where roads are not highly improved.

The testimony of Mr. George Parker, Superintendent of the Dominion Express Company, describes the operation of a trucking system into the very area in which the radial proposes to run between Hamilton and Niagara Falls, and shows that the service already effecting an economy, will improve with the completion of the High Way: "We have motor trucks operating between Hamilton and Niagara Falls daily except Sunday—2½ ton trucks. This service was introduced on March 1st, 1920. It has the advantage of being able to avoid extra handling of express matter. The cost for motor truck between Hamilton and St. Catharines is 34.5c per hundred weight—4.5c higher than the former joint service. The motor truck is the better service, and will be considerably improved when the highways are put into better shape."

It is well known that many people are now engaged in both Passenger and Freight business on the present Hamilton Highway. Mr. Wolfe Wilder told the Commission that he had been trucking for four years on that route, and had, in 1920, 20 trucks. He states that he carries goods for everybody—chiefly the wholesaler and manufacturer; that he handles goods for the Canadian Westinghouse, The Steel Co. of Canada, The T. Eaton Co., and made as many as two round trips in 24 hours, and has handled as much as 100 tons per day; and if the viaduct at Hamilton were completed, he could add a trailer.



Similarly Mr. H. A. Telfer of the Telfer Biscuit Co., says: "We have had a motor truck system in existence for four years. The benefits of this system as compared with the existing steam roads are:

- (1) Actual saving in the cost of transportation 32c. v. \$1.20 per hundred weight.
- (2) Preservation of the product, less damage, less pilfering.
- (3) Economy in the actual manufacture rolling stock.
- (4) More efficient service, dependable, direct, prompt.
- (5) Extended control of the product as handled by our own men and having no damage claims with transportation companies to settle.
- (6) The elimination of shipping cases and trouble in the return of empties and extra warehousing for crating.

The extension of our motor trucking is contingent on better roads, which factor will also enable the use of trailers which may be dropped part way and picked up again on the return trip.

For Christie Brown & Co., Charles E. Edmunds, Gen. Manager, and Mr. Joseph Green, Transportation Manager, concur with the above testimony of Mr. Telfer, as to the economy and efficiency of the motor truck in their business. They state that they have been using the motor trucks since 1915; that as against a freight cost of \$119.54 their truck cost was \$91.07, including the return of empties; that there was no need for packing in wooden cases, thus saving labor and material. They had no need of freight lorries with sheds. They had no breakages or shortages and because no packing cases were needed, the shipments were 25% less in weight. As good roads extend, their trucking service will be extended; that with auto trucks they effect a saving as between two handlings and six handlings in the freight or express service.

Mr. A. W. Bell, Traffic Manager of General Motors at Oshawa, states that delivery of their motor cars for a radius of 150 miles is largely handled by what they term "drive-aways." That this effects an economy in freight and blocking; that it is not possible to ship their product to Toronto by rapid transit as proposed by the radials.

Mr. Donald R. Cowan, who instituted a research into motor trucking for the Department of Agriculture of Ontario, gave testimony that trucks are being used quite extensively in shipping of live stock adjacent to large centres, and that such stock arrived at the yards in better condition. He also gave instances of where trucks are becoming a factor in the handling of milk and fruit.

Mr. W. A. McLean, Deputy Minister of Highways, who has naturally been a close observer of the development of motor business on highways, stated in his testimony:

"I would say that within a radius of 50 miles from Toronto, there is a great deal of trucking of individuals and otherwise from all over the country around. It drops off during the winter months, depending on the roads. Between Toronto and Hamilton I do not think there is much falling off in actual motor truck use. There are more trucks on the highway perhaps in October than in any other month, because farmers are bringing in their apples, and other farm produce more extensively than at other seasons. I am unable to distinguish between such trucking and that for hire. It is a greater efficiency of service produced by the truck. By it you can have a piece of machinery from the factory into the point where it is to be used in three hours, whereas shipped by rail it may take from 3 days to 3 weeks. Very commonly the farmer for 50 to 60 miles, comes into Toronto in his own motor and brings his family. This is increasing very much."

That the automobile has already affected steam road revenues is indicated on the statement of Mr. G. C. Martin, Traffic Manager of the T. H. & B. Mr. Martin states: "Our Toronto Exhibition business this fall (1920) fell off about 25% from our local stations as far west as Waterford, Dunnville and those places. In reply to a questionnaire, the various Station agents stated that the falling off was almost invariably on account of automobiles; that people were driving in to the Exhibition and taking their friends."

Mr. W. F. Tye, an Engineer of wide experience in steam road operation, says: "The trucks are used on the good roads, and also for short distances on poor roads. I believe they are going to cut very seriously into the local earnings of the steam roads, and of the electric roads. It is a matter that the railway companies will have to take very seriously account of. With good roads, motor trucks would do the work which this hydro radial is designed to do; would do it

at a small fraction of the cost, and to a great extent better; that is, it would go right direct from the producer to the consumer."

Witnesses from the United States told of similar conditions in their country. Of those called by the Radial Railways Municipalities' Association, Mr. W. S. Rodger, General Traffic Manager of the Detroit United Railways, states: "I believe that by the end of this year (1921) the entire system will be paralleled by either concrete or good gravel roads. The auto has taken a lot of business from us. Concrete roads have unquestionably caused the residents along those roads to use autos to the exclusion of our cars. The riding habit has been largely diverted to the automobile instead of the street car or electric car to the extent that people are able to use the automobile."

Mr. W. H. Bunting, President of Niagara Peninsular Fruit Growers' Association, states: "Most of the fruit going into the Toronto Market is in heaped baskets, and requires considerable space to handle. The truck would not be able to carry enough of these baskets in that way, whereas a car, equipped with proper shelving can take sufficient quantity to make a car-load lot, and carry it satisfactorily."

Mr. H. T. Foster, Fruit Grower at Burlington, says: "Some fruit growers have adopted motor truck service to Toronto. There is a daily requirement of extra service during the period of June to October."

Mr. Walter Jackson, Manager of the Electric Railway Journal, who made researches in connection with the motor truck and motor bus, says: "The great increase in the use of private autos, the jitney and motor bus has introduced a serious, although not a fatal competition to the electric railway."

"This is true of a great many interurban railways—not all. The competition of autos operated for revenue outside of the cities has operated as a detriment to the revenues of almost every kind of railway, including interurban. You cannot make it too strong."

Similar statements were made by Mr. F. P. Gutelius, Vice-President and General Manager of the Delaware, Lackawanna and Western Railway: "Good roads and the auto bus lines have become a factor in local transportation in all districts where good roads have been constructed. In the State of New York there are operating 22,572 auto busses, a great majority of which are handling the same character of business as is proposed by the Hydro Radial Lines. As road construction progresses, it is reasonable and logical to expect that bus lines will be inaugurated between all points where there is sufficient traffic to justify."

Mr. R. M. Feustel of Fort Wayne, Indiana, who operates the system known as the Indian Service Corporation, which owns 200 miles of city and interurban lines in Northern Indiana, and operates in addition, 86 miles in Indiana and Ohio, making a total mileage operated of 286 miles of city and interurban lines, combined, states: "Motor trucks are becoming a more important factor, along with the building of better highways in Indiana. They are becoming practically a problem for distances up to 25 miles. They have an advantage inasmuch as they back up to the jobber's door and take his L.C.L. freight and deliver it to the retailer in the small towns. They are developing a truck business that will be a real factor in competition. It is one of the new important factors and there is no doubt it has a place in rendering service.".....  
....."Good roads in Indiana and the motor business are becoming a more important factor.".....  
.....

Mr. F. W. Coen, Vice-President, Treasurer and General Manager of the Lakeshore Electric Railway Company, with headquarters in Cleveland, states:—"I think the auto passenger car and auto truck are real methods of transportation that have to be considered with any method of transportation, electric or otherwise. They are here to stay as I see it. I see trucks and moving vans from all over the country, from 300 miles".....

....."The Cleveland Provision Company have a distributing warehouse in Lorraine, and they handle all their stuff between there and Cleveland by truck. We used to handle all that stuff, but we do not get any more of it now".....

....."That three out of every four of the Lakeshore people as far as Lorraine, travel by auto".....

....."There is operating out of Cleveland today a regular truck line between Cleveland and Akron, 30 to 35 miles, and they keep running whether profitable or not."



"Good roads have cut into the business quite materially. We are hauling less people into Cleveland from the west of Cleveland into the city than ten years ago, notwithstanding that there are many more people there."

Mr. R. I. Todd, President and General Manager of the Indianapolis Street Railway Co., and also the Terre Haute, Indianapolis and Western Traction Company, says: "The motor truck business has been increasing. I do not think it is a profitable business, but I do not see any evidence of its dropping out."

The Commission, while inspecting the American Interurban roads in the New England States and the Middle West, were struck with the extensive use that was being made of motors. Everywhere the motor truck was in evidence on the highways, and to any observant citizen it is a self-evident fact that the automobile is cutting seriously into the receipts of all railways.

As an indication of how rapidly the use of the automobile is increasing, statistics show that whereas in 1910 in the State of New York, there were 62,655 automobiles, or 1 for every 145 people, in 1919 there were 597,542 automobiles, or 1 for every 18 of a population.

Ontario statistics give 4,230 automobiles in 1910, or 1 car for every 597 people, and for 1919, 138,288 automobiles, or 1 motor for every 20 people.

The Federal Electric Railways Commission, in its report to the President of the United States, on p. 4, paragraph 11, states: "The great increase in the use of private automobiles, the jitney and motor busses, has introduced a serious, although not a fatal competition to the electric railway. These forms of public motor conveyance when operated as public carriers should properly be subject to equivalent regulatory provisions."

Again on page 10, section 3, paragraph (1), we find this statement: "Automobile and Jitney competition.—For several years prior to the war, and to an increasing extent throughout the war period, and up to the present time, the automobile has proven to be a serious competitor of the electric railways rendering local transportation service. Jitneys and automobile busses operating as common carriers have been able in some cases, through the absence of sufficient public regulation, to engage in unfair and destructive competition with the electric railways for the most profitable part of urban passenger traffic. Strong as this competition has been, however, the electric railway industry as a whole has shown a very substantial increase in the riding habit. The operation of jitney busses as common carriers is much more restricted than the operation of private automobiles, but the jitneys have had a definite and intensive effect upon the street railway situation in particular communities, for the reason that they have engaged in direct and in some respects destructive competition with the street cars as public carriers. The experience of numerous communities, even before the extraordinary conditions growing out of the war, made it clear that unrestricted jitney operation, though more or less temporary and precarious in character, threatens the service, credit and solvency of the street railways."

Such statements, by representative men who have made an exhaustive study of transportation conditions in the United States, go to substantiate the value of the testimony of individual witnesses before this Commission. *It should also be pointed out* that not only the Federal Commission, but others recognize the need of some action being taken by the proper authorities to regulate these utilities which are growing in volume, in such a way that they *will contribute* their share in the up-keep of these rather expensive highways more especially so because of the fact that as the load increases, they will have a more detrimental effect upon these roads.

We might call attention to what may seem an omission in the Federal Report. They seem to have made no reference to motor trucking. Possibly this is due to the fact that electric railways in the United States have not gone extensively into the freight business, and therefore have not felt this competition. From the evidence submitted throughout this investigation it is quite clear that the freight returns of the electric railways of the United States have been a comparatively small part of their gross revenue.

We cannot pretend, within the limited compass of such a report as this to note in detail every reference made by witnesses bearing on the subject of motor competition, but such references as are here made, may be considered to reasonably present all the facts. To sum up, it will be quite clear that the competition with the electric railways of traffic on highways and good roads, particularly that of motors and motor trucks, has grown to be so extensive as to be a factor of great financial importance in considering the projection of any system of railways such as has been proposed for this part of the Province.

## XIII. (a) MEMO. AS TO WITNESSES.

## 1.—Certain Officials of the Hydro Electric Power Commission:—

F. A. Gaby, Chief Engineer.  
 T. U. Fairlie, Departmental Head in charge of Railway Engineering.  
 W. G. Hewson, General Railway Engineer.

## 2.—W. S. Murray, Consulting Engineer of New York.

## 3.—Officials of steam and electric railways in the territory in question:—

C. E. Friend, Comptroller of Canadian National Railways.  
 G. C. Royce, Manager of Toronto Suburban Railway.  
 E. P. Coleman, General Manager of Dominion Power and Transmission Company.  
 W. M. Neal, Assistant General Superintendent of Ontario District, Canadian Pacific Railway.  
 C. Bowker, General Superintendent, Eastern Lines, Grand Trunk Railway, Ontario.  
 M. W. Kirkwood, General Manager, Grand River Electric Railway and Lake Erie and Northern Electric Railway.  
 G. C. Martin, General Traffic Manager of the Toronto, Hamilton and Buffalo Railway.

## 4.—W. A. McLean, Deputy Minister of Highways for Ontario.

## 5.—George Parker, Supt. of Dominion Express Company.

## 6.—Railway Experts called by Radial Railway Commission:—

W. F. Tye, Consulting Engineer, Montreal.  
 F. P. Cotelius, Vice-President, Delaware & Hudson Railway, Albany, N.Y.  
 F. W. Coen, Vice-President, Treasurer and General Manager, Lake Shore Electric Railway Co., Cleveland.  
 Robert I. Todd, President and General Manager of Indianapolis Street Railway and Terre Haute & Indianapolis Traction Company.

## 7.—Dr. Reid, Minister of Railways &amp; Canals, Ottawa.

## 8.—J. H. Gundy, Broker and Bond Dealer, Toronto.

## 9.—Henry H. Couzens, General Manager, Toronto Civic Transportation Commission, and E. L. Cousins, Manager, Toronto Harbour Commission and Chief Engineer.

## 10.—Special experts called by Mr. R. S. Robertson:—

L. A. Herdt, Consulting Engineer and Vice-Chairman Montreal Tramways Commission.  
 R. M. Feustel, Consulting Engineer, and President, Indiana Service Corporation.

## 11.—Bion J. Arnold, Special Expert, called by Mr. McKay, K.C.

## 12.—Motor Truck specialists:—

D. R. Cowan, (called by Mr. R. S. Robertson) and Walter Jackson (called by Mr. McKay).

## 13.—Certain Special Witnesses called by Mr. McKay:—

G. A. Cullen, Vice-President North American Fruit Exchange, New York.  
 C. E. Thompson, Assistant to President, Chicago and North Shore and Milwaukee Railway.  
 C. D. Cass, General Manager, Waterloo, Cedar Falls and Northern Railway.  
 A. Ellis (Carr, Ellis & Co., New York) Export Traffic Expert.  
 B. F. Wood, Consulting Engineer, of New York.  
 C. E. Lee, Operating Railway man.  
 C. A. Cheval, Auditor of International Railway Company, Buffalo.  
 T. H. Stoffel, Freight Transportation Engineer of Westinghouse Company.  
 C. L. Wilson, Assistant Manager, Toronto & York Radial Railway.  
 J. E. Richards, Manager, London & Port Stanley Railway.  
 W. S. Rodger, General Traffic Manager, Detroit United Railways.

## 14.—Statistical and Accounting and Technical Experts:—

C. E. Bailey (of J. G. White Engineering Corporation of New York).  
 F. A. Sager (Engineer with Mr. Arnold's Company).  
 R. B. Rifenberick, Consulting Engineer (formerly with Detroit United Railways).

## 15.—Certain other officials of the Hydro Electric Power Commission:—

Oswald Stanley, Engineer.  
 A. E. K. Bunnell, Engineer.



T. A. Wilkinson, Engineer..

W. R. Robertson, General Supt. of Hydro Railways.

16.—C. A. Matthews, Deputy Treasurer of the Province of Ontario.

17.—General local witnesses called by Mr. R. S. Robertson, 42.

18.—General local witnesses called by Mr. McKay, 54.

The Radial Railway Commission called the following witnesses:—Gaby, Fairlie, Hewson, Murray, Friend, Royce, Coleman, Neal, Bowker, Kirkwood, Martin, W. A. McLean, George Parker, Tye, Gutelius, Coen, Rifenberick, Todd, Dr. Reid, Gundy, H. H. Couzens, E. L. Cousins, Matthews and W. R. Robertson, 24.

Mr. R. S. Robertson called:—Cowan, Herdt, Feustel, Bailey and 42 local witnesses, 46.

Mr. McKay called:—Jackson, Cullen, Ellis, Wood, Lee, Arnold, Cheval, Sager, Thompson, Cass, Stoffel, Wilson, Richards, Rodger, Stanley, Bunnell, Wilkinson (recalled Fairlie and Robertson) and 54 local witnesses, 71. Total, 141.

### XIII. (b). ESTIMATE OF WITNESSES.

1.—The weight to be attached to the evidence of Mr. Gaby, Mr. Hewson and Mr. Murray in support of the estimates, was in our opinion much affected by their inexperience in the practical operation of electric railways.

2.—The evidence of C. E. Friend, Comptroller of Canadian National Railways, G. C. Royce, Manager of the Toronto Suburban Railway, E. P. Coleman, General Manager of the Dominion Power and Transmission Company; W. M. Neal, Assistant General Superintendent of the Ontario District of the Canadian Pacific Railway; C. Bowker, General Superintendent of the Eastern Lines (Ontario), of the Grand Trunk Railway; M. W. Kirkwood, General Manager of the Grand River Electric Railway and the Lake Erie and Northern Electric Railway, and G. C. Martin, General Traffic Manager of the Toronto, Hamilton & Buffalo Railway; all officials of steam and electric railways actually operating in the territory in question, should be regarded as very important, and it cast the greatest doubt on the expectations that the proposed system of electric railways could be operated at such low operating costs or secure the revenue expected.

3.—The clear effect of the evidence of W. F. Tye, F. P. Gutelius, F. W. Coen, L. A. Herdt, R. M. Feustel, C. E. Bailey and R. B. Rifenberick lead to the same definite conclusions.

4.—The evidence of G. A. Cullen, Vice-President of the North American Fruit Exchange, New York; C. E. Thompson, Assistant to the President of the Chicago & North Shore and Milwaukee Railway; C. D. Cass, General Manager of the Waterloo, Cedar Falls & Northern Railway; A. Ellis, of Carr, Ellis & Company, New York, Export Traffic Expert; B. F. Wood, Consulting Engineer of New York, and C. E. Lee, an operating railway man, all witnesses called by the Municipal Hydro Electric Railway Association, or the Hydro Electric Power Commission, appeared useful to some extent for comparative purposes. Most of these witnesses, however, dealt with situations in or about such large population centres as New York, Chicago, Philadelphia to Atlantic City, and the like, and with reference to conditions such as can hardly be expected to pertain in and about Toronto, Hamilton, or elsewhere in the district in this Province in question for many years to come.

5.—Mr. C. E. Bailey, Mr. F. A. Sager and Mr. R. B. Rifenberick may be, to some extent, classified together as statistical, accounting and technical experts.

The evidence of Bailey and Rifenberick cast great doubt as to the expectations of the Hydro on the score of low operating ratio and high revenues. Mr. Sager in what is known as the Arnold report went into very great detail, as also in subsequent statements and summaries, with respect to population and freight and expected revenues.

6.—Mr. C. A. Cheval, the auditor of the International Railway Company, operating in Buffalo and from that city to Niagara Falls, indicated and testified particularly to the largely increased traffic secured on the direct double track line, connecting these two municipalities, and which was built some years ago in addition to an existing line which was not quite so direct. Nevertheless even such railways connecting the large city of Buffalo with the great scenic attraction of the Falls, with double tracks and long sidings and operated by Niagara Falls power, are found not to have been carried on with any too successful financial results.

7.—T. H. Stoffel described as a Transportation Engineer of the Westinghouse Company,

spoke of the financial difficulties of electric railways in the United States and the reasons therefor. He was somewhat optimistic that certain suggested improvements with respect to the handling of freight by electric railways would assist considerably in increasing the freight carried and thus add an important element to the revenues of electric railways.

8.—C. L. Wilson, Assistant Manager of the Toronto & York Radial Railway, gave some useful evidence as to the results of the operation of that railway.

9.—J. E. Richards, Manager of the London and Port Stanley Railway, dealt with its operations. There had been a steam road connecting London with Port Stanley with a roadbed, terminal facilities, sidings and the like. The Hydro Electric Power Commission built and equipped an electric road upon this roadbed, and it has been operated by Hydro Power. It is to some extent a switching board. It handles a great deal of coal brought in cars to the dock at Port Stanley, and taken from thence to London and on over other roads. It has certain park attractions at Port Stanley which have much increased its passenger revenue. In kind of construction and operation it is said to be somewhat comparable with the system of electric railways in question herein. It is owned by the City of London and operated by a Commission thereof. A rental of \$20,000 a year is charged. It seems clear that if any reasonable estimate were made of the cost of replacing the roadbed, and if interest were charged upon the same the excess of the said rental would have resulted in the road running at a deficit up to the present time.

10.—W. S. Rodger, General Traffic Manager of the Detroit United Railways, who, like Cheval, Stoffel, Wilson and Richards, were called by the Municipal Hydro Electric Railway Association, or by the Hydro, gave useful evidence in comparing that railway with the proposed system.

11.—Oswald Stanley, A. E. K. Bunnell, T. A. Wilkinson and W. R. Robertson gave some useful evidence with respect to surveys and comparison they had made. The testimony of the latter was rather weakened by his lack of familiarity with his operation of the Sandwich, Windsor and Amherstburg Railway which is supposed to be in his charge as Manager of the Hydro Electric Railways.

12.—C. A. Matthews, Deputy Treasurer of the Province, furnished the Commission with statistics with reference to its debts and commitments.

13.—W. A. McLean, Deputy Minister of Highways, discussed the extensive plan with reference to good roads on which the Government has embarked, and told of the costs of construction thereof and the like.

14.—Following upon the obvious note of warning sounded by Mr. Clarkson in his report of the 19th of March, 1920, the evidence of J. H. Gundy, a financial expert of prominence, was very instructive. He spoke of the increasing rates of interest for money, of the disadvantageous effects likely to follow if any additions to the present commitments of the Province, in the way of new enterprises, involving such further large borrowings, were to take place. He also suggested the possibility of the credit of even such a rich Province as Ontario being affected. He pointed out the responsibility of Ontario for so large a part of the public debt of the Dominion of Canada.

In the final analysis, however, it seems to us that greatest reliance must be placed upon the evidence of actual operating experts of standing and experience. We regard the following as particularly to be regarded as in this class:—Gutelius, Feustel and Todd. We would also estimate Arnold and Herdt as high class experts. The evidence of all of these, with the exception of Arnold, leads to the inevitable conclusion that the construction of the proposed system of electric railways cannot be recommended, owing to the following reasons:—high construction costs, too low estimate of operating costs and too high an estimate of revenues.

Mr. Arnold, though it may be said that in the end he endorsed the feasibility of the scheme, or at all events did so with certain substantial changes which he suggested, was when he first came to consider it skeptical of its success. The last clause in his report is as follows:—“The entire electric transportation system and the character and scope of the service which it proposes to furnish, are all conceived along broad lines. While the system as a whole cannot be compared with any existing interurban system, combining as it does rapid transit, suburban and interurban passenger features, with dispatch and carload freight traffic, yet each of these classes of service has its parallel in existing systems, and when an analysis of the estimated



operating results of these various classes of service has been made, they lead to the conclusion that the project herein outlined as a whole is feasible and that if constructed and operated under competent management with the support of the communities served, its success can be reasonably expected." This, surely, is, after all, a rather hesitating and qualified endorsement. The greatest difficulty, however, in giving the weight which might otherwise be given to his testimony arose from the fact that the elaborate and voluminous report, which bears his name, was apparently largely prepared by his assistant, Sager, and that during the course of his evidence he had so frequently to appeal to, and be prompted by, Sager and the other assistants, as greatly to weaken his evidence. It seemed rather that while the Report bore his name it was substantially the work of others.

The cumulative weight of the destructive criticism of the scheme as a whole of Gutelius, Feustel, Herdt and Todd clearly must be given effect to as against the opinion of Mr. Arnold.

Several witnesses were called by Mr. R. S. Robertson to testify with respect to motor trucking Toronto to Hamilton, and elsewhere, and the actual competition of such trucks with existing railways.

He called several other witnesses to speak of the conditions under which such commodities as grain, livestock, and the like must be handled to give satisfaction as through freight.

He also called about thirty men who may be classed generally as municipal witnesses, Mayors, Reeves, Councillors, Treasurers, Clerks and the like. Their testimony was directed largely to complaints regarding the manner in which the by-laws were submitted in some of the municipalities, to the drastic character of Hydro legislation, and to features in the agreement which the municipalities were called upon to execute in connection with the project.

Fifty-six witnesses in all, from the various municipalities along the route of the proposed radials were called by Mr. McKay. They were representative of practically all the Departments of local activity, including real estate, manufacturing, wholesale business, professional and mechanical.

They clearly point out that the impetus which the use of the automobile had given to the development of the territory in which this road was proposed to run, had been impeded at the point where the steam roads were failing to give adequate service, more especially to those who are ordinarily classed as "commuters."

In the larger centres exclusive of Toronto and Hamilton manufacturers and business men reported that they were somewhat handicapped by reason of slow freight movements, and what they regard, also, as inadequate service in connection with fruit movements.

City people, anxious to get away from the congestion, had gone out for distances up to 20 miles, to establish homes where they might have the luxury of a small holding for garden purposes. At the same time they desire to maintain their city connection at the office or business or industry. To do this they are largely dependent on the steam roads, which roads have utilized, to some extent for this purpose, trains which handle through traffic, a feature which has been attended by occasional delays, and has caused these suburbanites to be late for their appointments. Naturally they have sought a more satisfactory arrangement.

Practically all of the area proposed to be served is suitable for fruit growing and gardening, a situation which calls for a prompt daily service during practically four months of the year. It is only fair to point out, in this connection, that to overcome this difficulty recourse has been had, according to the testimony of several witnesses, to motor trucks and steamboat facilities. The evidence will go to show that a large part of the area between St. Catharines and Lake Ontario, adjacent to the Niagara Central Railway, handle all their output for Toronto, by boat. West of Beamsville, the fruit for local consumption seems to be handled almost entirely by truck. So far as the fruit belt is concerned, there does seem to be a call for more expeditious service between St. Catharines and Beamsville.

The chief source of complaint on the part of these witnesses, so far as freight movements on the Niagara Central and its connections are concerned is that whereas a through rate obtained between that road and the T. H. & B., now that the Grand Trunk has become nationally owned, the only through route is via the Canadian National Railway. It is only fair in this connection to point out that so far as the Commission had information regarding the relationship which may obtain should the Niagara Central line be purchased as a part of the proposed system, it is open to question whether the existing relations will not be maintained.

In that rapidly developing industrial area lying south of St. Catharines, it was claimed that the present schedule of the Niagara Central did not give them the frequency in passenger service which they felt the district required, but witnesses from the southern terminal at Port Colborne made it quite clear that no matter what might be done with the present system, that they must have a direct connection to Buffalo, by means of a new line built as far as Bridgeburg.

Between Dundas and Galt is a fairly productive agricultural region, which has had recourse to the motor truck to transport its milk products to the City of Hamilton. It is claimed that the radial could serve these people more economically than the present method.

In Galt and beyond, we have a group of towns and cities most active in a variety of industries. Witnesses representing many of these industries indicate that outside of a few handicaps which might be removed by granting certain franchise rights, the district was fairly well served. It is rather significant that a number of the witnesses, real estate agents, point out the substantial advances which had already been made in property values owing to Highway improvement. Indeed, it was hinted by more than one, that such advances in themselves would pay for the proposed railway.

In view of the changed relationships since the present roads have become publicly owned, it would seem that no hardship could be wrought on any part of this territory if the present facilities were co-ordinated in a true public spirited manner.

#### XIV. ALTERNATIVE SUGGESTIONS

As, during the course of the inquiry, and especially near its termination, doubts began to arise as to the Hydro Radial project, as submitted being self-supporting as a whole, various possibilities as to alternatives came under review.

The natural question which first arises out of consideration of the projects put forward by both the Hydro Engineers and Mr. Arnold, is whether, if the scheme in its entirety cannot be self-supporting, can any portion of it be so? A glance at the general project and the various estimates of its five divisions immediately discloses the fact that the System cannot be dismembered. Each division is dependent upon others for both passenger and freight revenue to make it carry itself within the combination—in fact that is the basic principle of the scheme and one of the main arguments put forward to the municipalities which entered into the project throughout the territory.

To show the impossibility of dismemberment, take first for instance, the Toronto Eastern. It certainly could not be expected to support itself even with the best hopes for favourable conditions because even Mr. Arnold's estimates show the largest deficit for it (\$10,000) in 1925 of any of the five divisions and the very much more optimistic former estimates of the Hydro Engineers allow it but the smallest surplus of all the five divisions (under \$20,000). The same might be said of the Toronto Suburban to Guelph, for Mr. Arnold's estimate shows this up to be the next poorest with a deficit in 1925 of \$7,000. Why and how the Hydro Engineers expect, according to their estimates to secure the large surplus of \$185,000 out of this line in 1925, when it is at present operating at such a continuous loss has not been made clear. As to the Toronto-St. Catharines Division it might appear at first glance that it might have favourable possibilities as Mr. Arnold gives it a surplus of \$145,000, and the former Hydro estimate, as usual much higher than Mr. Arnold, expects a surplus of \$330,000; how these are not possible of attainment will be shown later. The Hamilton-Galt-Elmira division also shows a deficit in Mr. Arnold's estimates of \$5,000, while the Hydro estimates claim a surplus of \$71,000. As for the Niagara-St. Catharines and Toronto, it appears a bright spot because it is already a going concern, is operating now with a small yearly surplus, and Mr. Arnold expects a surplus in 1925 operation of \$129,000 and the Hydro estimates show \$201,000. These increases of surplus over the present are only consequent, however, on connecting this system up with the larger proposed one and are to be obtained only after spending considerable sums in addition to purchase price, on betterments. It is difficult of course to conceive of a situation which would offer inducements to purchase and operate this existing system by itself especially as the Dominion Government will not sell it without including the other two lines, the Toronto Suburban (being operated at a loss) and the half built Toronto Eastern which never has been operated.

If it were thought desirable to build the Toronto-St. Catharines Division alone, as being a trunk or through line, the fact that according to Mr. Arnold's estimate it was expected to



have a surplus in 1925 of \$145,000 might at first make it appear a financial feasibility. It is to be observed, however, that within the revenue included on this line are large amounts expected to be derived from business coming to it off the Hamilton-Galt-Guelph-Elmira Division, the cutting off of which would deprive the Toronto-St. Catharines division of an amount of revenue over twice as much as the surplus shown while the reduced cost of operation would be only slight by comparison; the high fixed charges would remain almost the same. To give an idea what this means, it is to be noted that off the Hamilton-Guelph-Elmira line alone there is estimated, by Mr. Arnold, \$140,200 for Interurban riding to and from Toronto. \$11,500 for riding to and from Niagara Frontier together with \$90,300 for freight to and from Toronto; \$65,600 for freight to and from Niagara District and the frontier, assuming freight interchange with the N. St. C. & T. This aggregates a total loss to the Toronto & St. Catharines line of \$307,600 on the showing of the estimates by Mr. Arnold without any consideration of either (1) the loss of business expected to come over the Toronto-St. Catharines line from the frontier and N. St. C. & T. System (which might largely go to the G.T.R.) or the extent to which we consider the whole revenue estimate will be lessened for the reasons already given.

Again, if it were thought that to this the addition of the other good earning division, the Niagara, St. Catharines & Toronto, were made, the combination does not appear so favourable on close examination. These two together might provide a complete Hydro owned and operated line from Toronto to the Niagara Frontier, costing \$24,540,000 or over half of the whole project a similar condition would arise; these together would by Mr. Arnold's estimates, obtain a combined surplus of \$274,000 in 1925. The earnings of both these divisions, would, however, without feeder lines, be reduced to an amount 30% greater than this combined surplus, and the whole is also still open to the general objections already raised to the optimism of the estimates. In addition to this the provisional agreement for the purchase of the N. St. C. & T. provides that it will not be sold by the Dominion Government, without the other two lines, viz., the Toronto Suburban and Toronto Eastern.

It is thus evident that taking the most promising divisions of the System they cannot be found to be as likely to be self-supporting as even the whole system.

To follow this sub-division further, it has been suggested that possibly the line joining Toronto and Hamilton might be considered financially feasible as providing for an attractive suburban and interurban business. There have been no estimates or figures submitted to the Commission on this Section nor are those already submitted for the Toronto-St. Catharines line in such form as to be segregated by dividing them at Hamilton. It does appear, however, that with the very high construction costs proposed on the Toronto-St. Catharines line, the fixed charges would be unduly large for such a short section and a cheaper form of road would be preferable. It appears too that with such a short section the road would have to depend largely upon passenger business and L.C.L. freight and express when again it would come sharply into competition with the steam roads, the motor transportation on the highway and the suburban electric roads at either end. Carrying this idea further to a rational conclusion, however, it is for consideration whether the joining up of the existing lines, now two sections with two gaps, and the rehabilitation or improvement of these roads might not for the present serve a very useful purpose with reasonable economy. Such a course would be a matter on which the Province itself should not be called to enter, as it is rather for the terminal, and possibly the intermediate municipalities to work out an operative scheme to mutual advantage.

Some similar consideration might be given to the possibility of closing the remaining gap in the region between Hamilton and St. Catharines by joining the end of the existing electric railway at Beamsville to St. Catharines. Such a course, if adopted, would, as in the previous instance, require co-operation and traffic arrangements between the existing electric roads, independently of the municipalities or provincial government. It was shown in evidence that this had at various times been under consideration by the private companies.

In examining the project from all sides, however, and in viewing the evidence of the various witnesses, the estimates and reports, we are driven to the conclusion that the most obvious alternative scheme of a constructive nature lies in and about the City of Toronto. The whole Hydro Radial Project centres about this city which is the largest partner in the proposed co-operative scheme of the municipalities.

This was first brought to our attention by Mr. Gutelius in the course of his evidence in

which he considered that Toronto and vicinity should be treated separately from the rest of the project and that this area of separate treatment might extend outwards to a radius of say 15 miles or more.

Mr. Gutelius, in addition to his evidence, presented us with a report most of which was read into the evidence. The latter part, however, in the form of conclusions was not included in evidence in the same form, and on this account it is extracted in its entirety as follows:—

#### “FINAL CONCLUSIONS”

“After having made a personal examination of the various railways involved in this scheme and including the proposed lines to be constructed, and after having discussed the details with Engineer Fairlie of the Hydro-Electric Commission, and having studied the evidence thus far presented to the Commission, and having in mind the fact that many of the Municipalities have already voted upon this question, it would appear to me that the proper solution is as follows:

**TORONTO EASTERN.** Sell the line to the Oshawa Street Railway Co. or make an arrangement with them to operate it, or as much of it as appears to warrant and scrap the remainder.

Toronto to give the Kingston Road radial a rapid city connection and take care of Ward Eight in so doing.

**TORONTO-ST. CATHARINES.** Toronto to give the York Radial a rapid city connection at Sunnyside.

The municipalities to build or finance a single track line from Port Credit to Oakville, present lines to be improved for through service, and operate it in conjunction with or by the Hamilton and Toronto lines. The Government to guarantee the bonds if Toronto provides rapid city connection, and Hamilton do likewise.

Hamilton Railway lines to be extended direct to Burlington when business justifies.

Beamsville line to be extended through to St. Catharines—municipalities to build or finance and have it operated by the Hamilton and St. Catharines lines as can best be arranged, (Government to guarantee the Bonds).

Hamilton to Beamsville to be improved for through service.

**IN GENERAL.** Provide sidings and perform such local freight business as can be secured along the line same as is being done by the present lines—including express, milk, mail, etc.

**TORONTO SUBURBAN.** City of Toronto to give the Toronto Suburban a direct rapid transit line into the business centre of Toronto.

**CITY OF TORONTO.** City of Toronto to give the Metropolitan (Yonge Street to Lake Simcoe) a rapid transit line into the business centre of the city.

The Toronto rapid transit scheme for suburban traffic will require some such scheme as the Hydro have worked up, but I question the advisability of terminating them all at Union Station on account of congestion; better to have three smaller terminals near the business centre.

Should Toronto not undertake this task itself rather than add another factor to the present complication? It is a great undertaking and the detail is a city matter.”

It will be observed that Mr. Gutelius has thus made certain suggestions, especially as to Toronto, some of which we have embodied herein. As we have ventured to suggest elsewhere, we do not agree with his proposals that the Province should endorse or guarantee bonds.

Later throughout the evidence of different witnesses and in several reports, especially that of Mr. Arnold, the constant reference to the advantages in and about Toronto tended further to centre attention upon its difficult transportation problems, and the great desirability for their solution. The local necessity for transportation, its possible co-ordination with the existing city and suburban lines and the high earning possibilities in suburban business which become apparent culminating in the favourable estimates for such in Mr. Arnold's report, all seemed to demand that some such constructive scheme should be formulated out of the various proposals and the mass of evidence and information obtained.

It became apparent too that inasmuch as the Toronto situation naturally separated itself from the rest of the project out in the province, it should be treated as a purely local problem, and worked out with the view that the City of Toronto should undertake the construction and operation as a municipal enterprise co-ordinated with the other undertakings of similar nature now in hand.



This alternative suggestion crystallizes into a purely radial scheme based on Toronto. The term "radial" which has become so definitely attached to the Hydro Radial Railway Project is peculiarly applicable to Toronto, and in fact the Project as put before us, obviously had its inception as conceived in and about Toronto because the larger scheme appears to have grown outwards from this centre.

This Toronto Radial Scheme has already had a constructive impetus in the recent negotiation, now believed to be almost consummated, for the acquisition by the city of the three privately owned suburban lines which are included in the so-called "Clean up" of the power situation in Toronto. These three lines being thrown into the scale are, in our opinion, very instrumental in not only emphasising the desirability of a purely Toronto radial project but in making possible the adoption of those portions of the larger Hydro Radial project which lie in and around Toronto. All of these in combination, three portions of the Hydro Radial lines within or close to the city and the three other lines about to be acquired, together can probably be merged into a practical and economical radial project to be operated in conjunction with the City of Toronto Street Railway System now also about to be acquired. We consequently suggest this as an Alternative Scheme.

This suggested scheme embraces first the use of the portion of the Toronto Eastern within the city which, in Mr. Arnold's Report, is called the rapid transit suburban section about six miles in length, out as far as the Don Valley crossing. This section, according to Mr. Arnold, if operated independently of the city (i.e. as a Hydro road) would produce a very good revenue from suburban and local sources; owned and operated by the city as a part of its city system, it should be even more remunerative.

The Toronto Suburban Railway to Guelph (while still remaining under public ownership of the Dominion) would have, as brought out in evidence, a great advantage, if given access for its interurban cars from Guelph (and also from Weston and Woodbridge direct or by transfer) down to the centre of the city. Such a connection is proposed under the plans of the Radial project and if this short section were built by the city from Keele street down the Humber Valley to Sunnyside, it would provide the means desired, and at the same time enable the City Street railway system to have a rapid transit line around the western part of the city similar to that already suggested for the eastern side.

That portion of the Toronto-St. Catharines line as proposed within the city limits could be made immediately useful as forming the desired entrance to the city from the west. This would permit direct access to Bay street for cars coming in both from the west and the northwest as already provided for in the Hydro plan for this part of the scheme and would embrace the advantages already pointed out in this respect. It is obvious that the very costly construction proposed in the Hydro scheme cannot economically be followed, for such a line as this within the city, desirable though it may appear, would have the handicap of high fixed charges, and would be too heavy to carry. Construction might be arranged so that as business developed and warranted, improvements could be undertaken.

With the acquisition by the city of the Mimico Division of the York Radials, now operating from Sunnyside to Port Credit, a means is already at hand for serving that suburban portion of the city to the west of the Humber River. This line has, at present various structural disadvantages such as curves and wide gauge, and while its location on the highway may require slower speed as claimed, it has the advantage of offering more convenient access to the residents. Certain changes might be made in location and other betterments would be required to place the road on a good working basis comparable with other parts of the Toronto System. It is to be borne in mind that this division even as it now exists, is the best paying Suburban railway in the vicinity of Toronto.

It is here suggested that a logical course to be pursued is the construction of the missing link between Port Credit and Oakville; why this has never yet been done was not clearly brought out. Such an extension would serve not only the suburban locality and the town of Oakville which very much needs such service, but would permit a through electric car run from Toronto to Hamilton even as the lines now exist; this is without considering the possibility of a shorter line being built from Burlington to Hamilton when demanded. It is suggested that in order to bring about the construction of the link between Port Credit and Oakville, which ought to be built of high standard, there might be some local co-operation between the City of Toronto

(with its Mimico line when required) and the municipalities of Oakville and Port Credit and possibly the townships concerned. This is deemed by us to be purely a local matter and one in which the Province should not be called upon to enter.

As to the situation in the northern area of the city, which really does not enter into the plans of Radial project as presented to us, it is to be recognized that the Metropolitan Division when acquired must ultimately have provision for getting its interurban cars down to the lower part of the city in some such manner as already described for the eastern and western entrances. It is suggested that a connecting line might turn off York Mills, and running in the vicinity of the Don River connect at the upper end of the Eastern suburban (or Mr. Arnold's "Rapid Transit") line previously described as the city part of the Toronto Eastern Route. Such a plan, which we understand has already been under consideration by those concerned with city transportation matters, and which was referred to in evidence, appears to offer a solution for entrance of interurban cars from the north. This, too, is wholly a City of Toronto matter in conjunction with the adjoining county and townships, and being local is also one in which we consider the Province should not be called upon to enter.

The portions of these three proposed new roads within the city as described, would, according to Mr. Arnold's report, be by far the best paying portions of the Hydro Radial System, as they are all favourably situated for local and suburban business. These portions, including some extra lengths outside and adjoining the city, are together expected to earn a suburban passenger revenue of about \$1,074,500 (see Mr. Arnold's report), or about 21% of the entire passenger revenue expected for the Hydro Radial System in 1925.

To this expected suburban revenue on new lines, there could be added additional passenger revenue and some light freight and express, for instance:—On the Eastern Rapid Transit, the interurban passenger and freight business coming down the Metropolitan, and the revenue to be derived from any branches which may be built (eastward) in conjunction with the City Service; to the Toronto Suburban connection by Humber Valley and Sunnyside, the similar interurban and freight business arising from the main line and certain business from the local city lines in West Toronto (and possibly Weston, etc.); to the Humber-Sunnyside line main line to Bay street (through the Exhibition grounds and Harbor Commission lands, the right-of-way for which is almost all already available to the city), the interurban business of passengers and freight coming in from Port Credit, Oakville, Burlington, and to some extent, from Hamilton.

The aggregate revenue that might be thus derived from this combination appears somewhat attractive, especially when it might be operated under one management, such as by the City Transportation Commission. The fixed charges for these lines should be much lower in proportion than those rendered necessary by the Hydro plans, mainly because of the low purchase price of the lower standard lines to be newly acquired compared with the proposed cost of the very high standard new lines considered to be necessary by the Hydro Engineers. The operating costs as put in by Mr. Arnold, taken in conjunction with those given in evidence for the York Radials, which seem to offer a favourable opportunity for economic operation, but more likely if placed under the one unified management of the Toronto Civic Commission because revised plans and operative arrangements may be worked out by it whereby both construction and operation costs may be considerably reduced.

The general question of the terminal station in Toronto is difficult to consider under any circumstances. It was early obvious that the proposal by the Hydro Engineers to discharge passengers at the waterfront was open to many objections, not the least of which was the lessened revenue to be derived by an inconvenient terminal. It was for this reason that Mr. Arnold proposed the subway terminal even at its great cost. Until the viaduct and other large transportation questions, which are purely the affairs of the City of Toronto, are determined, the question of terminal will probably have to be left unsettled.

In general, such a Toronto Radial Scheme as it might be worked out, appears to us to offer various advantages. It would supply an opportunity for a truly "radial" system of railways operating into the city from a suburban belt up to say 10 or 15 miles radius—this outer district might, as has been suggested, be formed into a greater Toronto District so as to secure unified transportation control by the municipalities themselves, apart from and free from any outside influence or interference.



This system would offer to suburban residents, workmen and others, who desire the advantages of cheaper homes and living expenses, a cheap and convenient transportation to the outer zone by means of a system wholly co-ordinated with the civic system; in this respect we consider that such commuters would have a better service than if under two separate transportation bodies operating under public ownership principles. It might be pointed out in this connection that remedy may now be more readily found for the so-called deficiencies of the steam railways in suburban business, because under their public ownership and operation, requests and insistence for, say, an extra train morning and evening where shown to be necessary in the interests of the public, will, doubtless be given heed to more readily than by a private corporation; the remedy lies with the Dominion Railway Board to assist in case of difficulty or reluctance on the part of the railway.

Such a unified transportation system would enable the Civic Commission to work out its own plans in conjunction with the problem of the street railway proper when taken over, and would not put it in the position of being a competitor with another transportation system operating within its area, such as the Hydro Radials might be. The civic system appears to have difficulties ahead in the ordinary course as to revenue, and Mr. Arnold in his evidence, from an intimate knowledge of the street railway problems in Toronto (from previous study) gave it as his opinion in his evidence before us, that the residents of Toronto were probably going to be confronted with a seven cent street railway fare. It does not seem reasonable to set up, especially at this juncture, another transportation system, which would in reality be in competition to some extent at least.

The necessary co-operation with the Toronto Harbor Commissioners would doubtless be more advantageously secured by another Civic Commission, than if a third were included.

All of which is respectfully submitted.

(Signed) R. F. Sutherland, Chairman.

(Signed) C. H. Mitchell,

(Signed) A. F. Macallum,

(Signed) W. A. Amos.

July 30, 1921.

## APPENDIX 1

SEAL

(Signed) "R. F. S."

(Signed) "A. F. M."

(Signed) "W. A. A."

(Signed) "C. H. M."

GEORGE THE FIFTH, by the Grace of God, of the United Kingdom of Great Britain and Ireland, and of the British Dominions beyond the Seas, KING Defender of the Faith, Emperor of India.

TO THE HONOURABLE ROBERT FRANKLIN SUTHERLAND, one of the Justices of Our Supreme Court of Ontario, BRIG. GENERAL CHARLES HAMILTON MITCHELL, C.B. C.M.G. D.S.O. C.E. LL.D., Dean of the Faculty of Applied Science and Engineering, University of Toronto, FRED BANCROFT, ESQUIRE, all of the City of Toronto in the County of York, WILLIAM ANDREW AMOS, Esquire, of the Town of Palmerston, in the County of Wellington, and ANDREW FULLERTON McCALLUM, Civil Engineer, of the City of Ottawa in the County of Carleton,

## GREETING.

WHEREAS, in and by Chapter 18 of the Revised Statutes of Ontario, 1914, entitled "An Act Respecting Inquiries Concerning Public Matters," it is amongst other things enacted that whenever the Lieutenant-Governor in Council deems it expedient to cause inquiry to be made concerning any matter connected with or affecting the good government of Ontario, or the conduct of any part of the public business thereof, or the administration of justice therein, and such inquiry is not regulated by any special law, he may by Commission appoint a person or persons to conduct such inquiry and may confer the power of summoning any person and requiring him to give evidence on oath, and to produce such documents and things as the Commissioner or Commissioners deem requisite for the full investigation of the matters into which they are appointed to examine, and the Commissioner or Commissioners shall have the same power to enforce the attendance of witnesses and to compel them to give evidence and produce documents and things as is vested in any Court in civil cases.

AND WHEREAS Our Lieutenant-Governor in Council of Our said Province of Ontario deems it expedient to inquire into and obtain a report upon the matters hereinafter mentioned:

NOW THEREFORE KNOW YE that by and with the advice of our Executive Council of Our Province of Ontario, and under the authority of the hereinbefore in part recited Statute, and of any other power or authority whatsoever in US vested in this behalf, and having and reposing full faith and confidence in you the said HONOURABLE ROBERT FRANKLIN SUTHERLAND, CHARLES HAMILTON MITCHELL, FRED BANCROFT, WILLIAM ANDREW AMOS, and ANDREW FULLERTON McCALLUM, DO HEREBY APPOINT you to be our Commissioners in this behalf, with all the powers authorized by the said Act,

1. To enquire into and report upon the whole question of Hydro-Electric Railways, and all matters which in the opinion of the Commissioners are relevant thereto, with particular reference to the matters that are raised by and discussed in the statement of the Government issued on the 6th day of July instant, a copy of which is hereto attached.
2. To make such suggestions and recommendations in connection with or arising out of any of the subjects indicated as in the opinion of the said Commission may be desirable.

TO HAVE, HOLD and ENJOY the said office and authority of COMMISSIONERS for and during the pleasure of our said Lieutenant-Governor in Council.

AND WE DO HEREBY APPOINT you the said Honourable JUSTICE SUTHERLAND to be Chairman of the said Commission.

IN TESTIMONY WHEREOF we have caused these our Letters to be made Patent, and the Great Seal of our said Province to be hereunto affixed.

WITNESS, HIS HONOUR LIONEL HERBERT CLARKE, Lieutenant-Governor of Our Province of Ontario at Our Government House in Our City of Toronto in Our said Province this twenty-first day of July in the year of Our Lord, one thousand nine hundred and twenty, and in the eleventh year of Our Rein,

BY COMMAND.

(Signed) H. C. NIXON,  
PROVINCIAL SECRETARY.



## STATEMENT ISSUED BY THE GOVERNMENT OF ONTARIO IN CONNECTION WITH CERTAIN PROPOSED HYDRO RADIAL RAILWAYS ON JULY 6, 1920

While the Government realizes the importance of rapid and economic transportation, and is much impressed by the case presented by Sir Adam Beck and the municipalities, it cannot disregard the many and serious problems involved in the proposals now presented for the purchase and construction of hydro-radial railways under Government guarantees, and having now reached a conclusion as to the action it ought to take in the matter, it conceives it to be its duty to give reasons for the course it proposes to follow.

## THE LEGISLATION

Under the provisions of the Hydro-Electric Railway Act, 1914, and amendments thereto, the Commission is authorized to enter upon the construction (or purchase) and operation of electric railway lines when the municipalities interested shall, in respect of any proposed line, have signed agreements containing terms and conditions laid down by the Act, and deposited with the Commission debentures to the amount of their respective shares of the costs of construction and equipment of the line. The Commission then issues its own bonds guaranteed by the Lieutenant-Governor in Council. The bonds thus issued and sold are to all intents and purposes the bonds of the Province.

## ROADS NOW BEING OPERATED

The only railways now being operated under this legislation are the Sandwich, Windsor & Amherstburg Railway and the Windsor and Tecumseh Railway.

These railways run from Tecumseh to Amherstburg through Ford City, Walkerville, Windsor, Ojibway and Sandwich, a distance of about twenty-five miles. They were acquired early this year by the Hydro-Electric Power Commission at the price of \$2,039,000, which was paid by the issue of forty year bonds of the Commission guaranteed by the Province.

The report of the Commission for 1919 referring to these lines states that "The estimates indicate that some \$250,000 will have to be spent to bring the lines into fair operating shape."

The Hydro-Electric Power Commission is also operating the Peterborough Street Railway, which was purchased by the Province in 1916, along with the Seymour Power System. In the report of the Hydro-Electric Power Commission for 1919 there is this statement:—

"It was found that the service given was much better than supplied any other city of corresponding size, and that the revenue was really not sufficient to cover all legitimate charges."

In his report of last March respecting the Hydro-Electric Power Commission Mr. Clarkson states that this road showed losses in 1918 and 1919.

These are the only street railways at present operated by the Commission.

The London and Port Stanley line is owned by the city of London and operated by a local commission.

## THE PRESENT PROPOSALS

The scheme now submitted for the approval of the Government covers the following lines to be built or acquired from the Dominion Government:—

- (1) Toronto, Port Credit, St. Catharines Line:—

Estimated cost of construction as revised by Mr. W. S. Murray,  
Consulting Engineer of New York City, and brought down  
to date .....\$ 22,298,635

- (2) Toronto Eastern Railway—(Toronto to Pickering, Whitby, Oshawa and Bowmanville):—

Estimated cost of construction, including right of way and  
partial grading to be acquired from Dominion Government  
at a cost of \$706,000. (Estimates made in September,  
1919) ..... 8,360,794

- (3) The Hamilton, Galt, Guelph, Elmira Line:—

Estimated cost of construction (Estimates made November,  
1919) ..... 6,530,659

## (4) The Port Credit to London Line:—

Estimated cost of construction (Estimates made in 1916).... 8,499,769

## (5) The Toronto Suburban Line (Toronto to Woodbridge and Toronto to Guelph):—

## (6) The Niagara &amp; St. Catharines Line (Niagara Falls, St. Catharines and Port Colborne):—

These two systems to be acquired from the Dominion Government at a cost of ..... 6,170,374

\$51,870,231

It is suggested that the Toronto to Guelph link of the Toronto Suburban system may be substituted for the Port Credit to Guelph link of the Port Credit to London line, and that this would mean a saving of about \$2,000,000 for construction expense. So that approximately the estimated cost of the proposed lines to be built or purchased is in round figures \$50,000,000.

Sir Adam Beck has furnished to the Government the following memorandum with reference to the proposals now under consideration:—

## TORONTO-PORT CREDIT-ST. CATHARINES RAILWAY

"Reports and estimates were submitted in the year 1915 to the municipalities between Toronto and Port Credit *re* the construction and operation of this section as a part of the Toronto to London line; by-laws were submitted in January of 1916, and for the section between Port Credit and St. Catharines, in 1917 and 1919, and were passed by large majorities.

"Fifteen municipalities have executed agreements with the Commission, authorizing the procedure with this work, and assuming the responsibility for the railway and its operation between Port Credit and St. Catharines, and have deposited with the Commission debentures for the full amount; the Commission has issued bonds to the extent of \$11,360,363.00, all of which have been guaranteed by the Province."

"A great part of the engineering work has been completed in the final survey of these sections and the Toronto-Port Credit-St. Catharines Railway and right of way purchased between Toronto and St. Catharines to the value of \$800,000.00."

## THE TORONTO AND EASTERN RAILWAY

"In May of 1919 some ten municipalities in this district passed resolutions requesting the Commission to negotiate on their behalf for the acquiring of the properties owned by the Toronto and Eastern Railway, and to prepare reports on the completion of its construction and its extension to Toronto.

"An option on the property was obtained by the Commission; by-laws were submitted to ten municipalities from October, 1919, to January 1st, 1920, under the Hydro-Electric Railway Act, all passing with large majorities; for the acquiring and completion of construction of this section of the Hydro-Electric Railways. The municipalities have all executed agreements, authorizing the Commission to proceed with this work.

"A number of the municipalities have passed the necessary by-laws for the issue of debentures to be deposited with the Commission.

## HAMILTON-GALT-ELMIRA-GUELPH ELECTRIC RAILWAY

"On January 1st, 1920, by-laws under the Hydro-Electric Railway Act, were submitted to fourteen out of seventeen municipalities in this district and, of these, thirteen municipalities carried with large majorities, while three have still to be submitted to the electors.

"The Commission has been able to obtain a credit of \$1,000,000 in the bank, by placing some of its bonds of the Toronto, Port Credit, St. Catharines line as collateral, and this amount it is believed will be sufficient for the present year in the purchasing of right of way, the engineering and the preparation of the right of way, for the commencement of operations when conditions warrant.



"The contemplated work for the year 1921, provided conditions remain as at present, will require an expenditure of approximately \$2,500,000.00.

"It is the intention of the Commission to proceed with the work of constructing electric railways only to such extent and as rapidly as conditions as to revenues and the cost of materials and labour will warrant.

"With reference to the negotiations of the Commission with the Dominion Government: the Commission has an option on the Toronto-Eastern Railway for \$706,000, for which amount the Government is prepared to accept the bonds of the Commission, for a period of fifty years, at 4½ per cent.

"The Commission has also received an offer from the Minister of Railways and Canals for the sale of the Toronto Suburban Railway, at present operating between Toronto and Guelph, and the Niagara, St. Catharines and Toronto Railway, operating in the district between St. Catharines to Niagara, St. Catharines to Welland and Port Colborne, Port Dalhousie and Niagara-on-the-Lake, for which the Minister of Railways and Canals is prepared to recommend to the Dominion Government the acceptance in payment therefor, of the Commission's bonds for a period of fifty years at 4½ per cent."

Sir Adam has also furnished the following memorandum (condensed), which gives further useful information with respect to the lines which it is proposed to acquire from the Dominion Government:—

"The Toronto Eastern Railway was designed to give a passenger and express service between Toronto and towns east thereof as far as Bowmanville, together with a freight service, working in conjunction with the Canadian Northern (now Canadian National) service.

"Owing to the physical characteristics of the district, the Grand Trunk Railway runs about two miles south of Whitby, Oshawa and Bowmanville, while the Canadian Northern is, generally speaking, about the same distance north.

"These three towns are developing industries of importance; especially is this true of Oshawa, which is now the largest shipping point between Montreal and Toronto.

"With an hourly passenger service on a line of this nature, the traffic would naturally go to the electric line on account of the frequency of service, just in the same manner as the Metropolitan Division of the Toronto and York Radial Company eliminated the passenger service on the Grand Trunk between Toronto and towns as far north as Newmarket. There would be considerable intertown traffic due to the industrial growth of Oshawa. The growth of the city eastward would be facilitated and encouraged by such a service. Unquestionably there would be a suburban business develop eastward that does not now exist, and steam lines would be largely relieved of local traffic within this zone.

"The eastern terminus of this line is the eastern boundary of the town of Bowmanville. It runs through the town along Wellington Street, a short block north of the main business street (Kingston Road.) The line from Bowmanville to Oshawa, a distance of nine miles, is almost a straight line, keeping close to the Kingston Road, as this is the principal highway along which traffic passes in the district. The line passes through Oshawa along Bond Street, again a short block north of the Kingston Road. From Oshawa to Whitby, a distance of four and one-half miles, the line keeps as close as possible to the Kingston Road, and passes through Whitby along Mary Street, a block north of the Kingston Road. From Whitby to Pickering, a distance of six miles the line is still adjacent to the Kingston Road. From this point to the Scarboro Golf Club, a distance of eight miles, the line goes south of the Kingston Road, and, at some points, is adjacent to the Grand Trunk. From this point a location was proposed westward to a junction with the Canadian Northern tracks near the Kennedy Road, and from there down the East Don to a terminal at Queen Street.

"The work completed consists of a portion from the eastern limit of the Town of Bowmanville, through Bowmanville, Oshawa and Whitby. The portion on the streets through these towns is laid with 80-lb. steel, and between towns 60-lb., with continuous angle bars. This track is all ballasted and was left in first class shape.

"From the western limit of Whitby to Pickering the line was graded but no track was done. From Pickering to the Scarboro Golf Club the major portion of the right of way was acquired but nothing further was done between these points."

The Niagara, St Catharines and Toronto Railway consists of the following lines:—

Main Line, Port Dalhousie to Niagara Falls .....	16.74 miles.
Welland Division, Thorold to Pt. Colborne .....	18.53 "
Lake Shore Division, St. Catharines to Niagara-on-the-Lake .....	12.18 "
St. Catharines Local Lines .....	9.59 "
Niagara Falls Local Lines .....	4.63 "

61.67 "

The line operates both a freight and passenger business, the latter consisting of a regular interurban service together with a local street railway service in the cities of St. Catharines and Niagara Falls.

The district served is a very important one industrially, as it has many large pulp and paper plants. Steel, electrical and chemical plants of magnitude are also located there. The Niagara, St. Catharines and Toronto Railway serves almost all the industries of the district—a very large proportion exclusively.

#### OPERATING STATISTICS.

Year.	Gross Revenue.	Operating Expenses.	Net Revenue.
1918 .....	\$940,407 21	\$699,380 87	\$241,026 34
1919 .....	1,030,756 32	796,349 83	234,306 49

The Toronto Suburban Railway Company consists of the following:—

Main Line—Local City Line .....	10.45 miles.
Weston to Woodbridge .....	7.50 "
Lambton to Guelph .....	46.325 "

64.275

#### OPERATING STATISTICS.

	Fiscal	Calendar	Calendar	Calendar
	1918.	1918.	1919.	1920
				conditions.
Revenue .....	\$277,413	\$314,167	\$394,514	\$545,000
Expenses .....	224,213	276,107	352,472	392,000
Net Earnings .....	53,200	36,060	42,042	153,000

"The estimates for 1920 conditions are based on increasing (1) service on Guelph Division from 3 to 8 round trips per day; (2) passenger rates from 2 to 2½ cents per mile; (3) wage schedule to pay from 46 to 50 cents per hour; (4) Increase equipment for local and through service, and to prepare for freight which is not being handled at the present time"

The broad question of policy is now up for determination. Shall this Government adopt the principle of publicly owned and operated radial railway systems for the Province as a whole—and proceed energetically, through the Hydro-Electric Power Commission, as conditions may warrant, with its construction (or acquisition) and operation of such a system?

The answer involves many considerations. In 1908, before Hydro Development started, the direct debt of the Province was \$17,250,000, with an indirect liability on guaranteed bonds to the amount of approximately \$8,250,000, making a total debt, direct and indirect, of between \$25,000,000 and \$26,000,000. To-day the direct debt of the Province amounts to \$104,000,000, while its indirect debt amounts to about \$21,000,000. The credit of the Province therefore stands pledged at the present time for the repayment of \$125,000,000.

To date the Province has advanced approximately \$56,750,000 to the Hydro-Electric Commission, and in connection with the Central Ontario System, owned by the Province. In addition to such advances it has guaranteed bonds to the amount of \$8,326,000 in connection with the purchase by the Commission of the Ontario Power System and certain minor systems. This means that of the obligations of the Province now outstanding approximately \$65,000,000, or 52



per cent. of its present debt, is represented by assistance given to the Hydro-Electric Commission.

The obligations of the Province are not, however, limited to the moneys and guarantees which it has already given, but, so far as can be estimated, it will in the near future have to supply between \$32,000,000 and \$33,000,000 more in cash to complete the Chippawa, Nipigon and other electrical power works in process of construction. \$3,000,000 to \$4,000,000 may also have to be advanced for the proposed auxiliary steam plant authorized at the last session of the Legislature. In 1921 bonds of the Ontario Power Company (owned by the Commission) to the amount of about \$2,500,000 will fall due, and the Province will undoubtedly have to render assistance by way of cash or guarantees to meet the same. In this way the Province is practically committed to advance between \$37,000,000 and \$40,000,000 more to the Commission in connection with its power projects within the next year or two, and if the cost of completing the Chippawa works should exceed the present estimate of \$45,000,000, the amount will have to be still further increased.

From the above it will be seen that with the completion of the Chippawa works and the construction of the proposed auxiliary steam plant, the advances already made by the Province, those which will have to be made in the near future, and the guarantees given and to be given, will amount to between \$103,000,000 and \$104,000,000—all in connection with the Power development, transmission and distribution system controlled and operated by the Commission. These amounts the Province and the municipalities are bound to repay.

The outcome of the Chippawa project is awaited with deep interest and much expectation by the people of Ontario, for the scheme has become so extensive and costly that the Province, providing, as it is doing, all of the moneys for its construction, is most vitally interested in its successful completion and operation. The exact effect of the Chippawa development, in so far as the cost of power developed by it and the burden to be assumed by the municipalities in connection with it are concerned, cannot be definitely determined until the works are completed, but the Government rests confident in the belief that the municipalities will continue to be able to pay, with advantage and without embarrassment to them, such prices for Hydro power as will permit repayment of the \$104,000,000 before mentioned to be made over the Sinking Fund period. The necessity of raising \$38,000,000 to complete the works and for other purposes of the Commission is, so far as the Province is concerned, however, a very heavy burden, particularly when the Province has to raise other large amounts of money in connection with its Highway development and other requirements.

Hydro radial projects, while they may to some degree facilitate the distribution of power as incidental to the operation of the railways, are entirely new and separate from the main object and scheme of the Commission, and with the enormous amounts involved in their construction must be considered on their merits and to a large extent independently and separately from the Hydro-Electric power project.

Radial railway projects, with high power and high speed lines, are, as far as Canada is concerned, practically a new field of enterprise. It is true that there are certain radial lines in the Province, but it would hardly be fair to judge the merits of the projected new scheme on the basis of the experience of the lines now in operation. If that were done the outlook would not be encouraging. On the other hand, there are many high speed lines in operation in the United States, constructed at much less cost than is possible at the present time, and if current report is to be accepted many of them are now meeting with difficulties in continuing their operations by reason of greatly increased costs. The experience of these lines if fully investigated would undoubtedly furnish some basis for measuring the probable revenue and costs of operation of the projected Hydro radials.

There has been a considerable amount of general discussion on the subject of radials, and municipalities which the suggested lines are proposed to serve have considered the matter and signified their wishes in respect thereto. There has, however, been practically no publicity given to the exact details of construction costs, operating expenses and expected revenue, or as to the fares or rates to be charged in the light of increased costs and other changes since the termination of the war.

Since estimates were presented for consideration of the municipalities, the Dominion of

Canada has taken over the Grand Trunk Railway and the Canadian Northern Railway, and these railroads, being now owned by the Dominion Government, their cost of operation has to be paid by the public. The effect of this situation was not before the municipalities at the time when several of the radial projects were voted upon. Neither had the present system of public highways for the Province been adopted at the time when the municipalities voted on the by-laws, and the effect of these highways when constructed upon the expected revenues of the radial roads has not been publicly investigated or discussed.

So far as the Government is concerned, no information has been put before it which is at all sufficient\* to permit it to form any reasonable opinion as to the correctness of the estimates put before the municipalities or the probability that the projected railways will have earnings sufficient to make them self-supporting.

Some of the estimates, however, were not made very recently, and it is beyond question that they would have to be increased if construction were proceeded with at once. This view is borne out by the report of Mr. W. S. Murray, Consulting Engineer, of New York, who was employed by the Hydro-Electric Commission to report on the present proposals, in which he gives the revised up-to-date estimated costs of the Toronto-St. Catharines Railway—with added equipment and possibly some extensions—as \$22,298,635, as compared with (so far as can be figured) \$16,594,749, reported to the municipalities, an increase of about 33 1-5 per cent.

With the debt of the Province now \$104,000,000, and the Government under obligation to raise \$37,000,000 to \$40,000,000 more to complete the power development works now under construction, it is estimated by Government auditors that with its other obligations and commitments the debt of the Province will within two years amount to \$160,000,000 or more. If the radial scheme is gone on with and kept strictly limited (which would be practically impossible) to the lines above mentioned the obligations of the Province will approximate \$210,000,000. Should the radial scheme be extended say from London to Sarnia and Windsor and from Bowmanville to Kingston, and otherwise as municipalities from time to time request, and as is to be expected—once the scheme is fairly started, the debt would, it is estimated, be still further increased by at least \$50,000,000, or to a sum more than ten times the whole debt of the Province in 1908. The Government is further advised that there is no certainty that the Province could raise the moneys necessary to finance such a scheme. But assuming that the money could be borrowed, it is pointed out that the annual interest charges would be almost equal to the total direct debt of the Province in 1908, and that the finances of the Province would be seriously crippled and great confusion and hardship created for the municipalities if the scheme were not to meet the expectations of its promoters.

The Province of Ontario must not, of course, come into competition with the Canadian National Railway System. That system showed a deficit last year of \$47,000,000, and it is estimated that for some years to come deficits on railway operation by the Dominion of Canada will run from \$30,000,000 to \$50,000,000. These deficits must be provided by taxation, of which the Province of Ontario will pay somewhere between one-third and one-half.

Moreover, there is the general question of the national debt of Canada, and of the taxes which must be raised for Dominion purposes. The debt of Canada is now \$2,000,000,000, or six times what it was in 1914. The annual expenditure of Canada before the war was between \$170,000,000 and \$175,000,000. The main estimates for this year total \$500,000,000, not including any allowance for demobilization, and independent of Supplementary Estimates, which will increase the amount. In other words, Canada's expenditure this year will be more than one-third more than the entire national debt in 1914. This Government is satisfied that the Dominion of Canada has resources abundantly ample to take care of every obligation, but the magnitude of the debt and the vast amount that must be annually raised in Ontario to take care of its proportion of Dominion taxation, are elements in the situation that cannot be overlooked when the Province is asked to take on further burdens. The Province must be assured that the new scheme will be at least self-supporting.

It is contended by representatives of certain of the municipalities to be served by the projected roads that the covenant of the municipality relieves the Government of responsibility. If the municipalities were required to furnish the moneys for the construction of the roads this



might to a large degree be true, but the fact is that the municipalities look to the Province to supply all the money required. This being the case, it will be realized that the Government has a responsibility not only to the municipalities to be served, but to the people of the Province at large, whose credit must be pledged for every dollar that is advanced to the Commission.

Under the above circumstances, and in view of the serious results to the Province, no less than to the municipalities, which would follow if the radial scheme after adoption and the assumption of a liability of many millions of dollars were to fail to be self-supporting, the Government is clearly of the opinion that it would be doing less than its duty to the people if it were to sanction the scheme until such time as it has been fully and completely investigated in a thorough and public manner and careful consideration given to all the facts of the case.

Besides the points already discussed, the following objections to the policy involved in the proposals appear to be worthy of careful consideration.

- (1) In the districts served by Hydro-Electric Power there is now a considerable shortage of power for industrial purposes. This is an especially serious matter for the Province. The completion of the Chippawa development, and the installation of an auxiliary steam plant, will no doubt relieve this situation, but the date of the completion of the Chippawa works is uncertain and the surplus of power that will then be available above industrial needs is a matter of conjecture.
- (2) The present radials in Canada were practically all constructed when the cost of construction was very much lower than it is at present. It would appear from the statistics that many of these radials have failed to pay. It would seem probable that it will be much more difficult to make the proposed Hydro radials pay with their much higher cost of construction.
- (3) It is said that the experience in electric railroads in the United States has been for several years financially unsatisfactory and that the municipalities would find it difficult, if not impossible, to float bonds for the projected roads, unless with the guarantee of the Government.
- (4) For all medium and short distances it is alleged that a system of good roads, upon which motor trucks could carry freight, will serve the public better than electric railways because the truck is not limited to a fixed immovable track and definite stations for receiving and delivery, but can go wherever the business requires. The Province is already committed to a good roads policy involving a large expenditure.
- (5) It is probable that every few years new bond issues would have to be made to pay for additional rolling stock, new sidings, double tracks and many other betterments. This would mean in the case of the present proposals additional financing on a considerable scale from time to time in the early future. The roads which it is proposed to acquire from the Dominion Government are said to be in great need of betterments at the present moment.
- (6) It is fairly open to question whether to the great responsibilities now carried by the Hydro-Electric Power Commission in connection with the production and distribution of Electric power (including the Chippawa scheme) there ought now to be added the responsibilities and the great burden of detail of a province-wide system of radial railways.

The attention of the Government is also directed to certain details of the specific proposals as follows:—

- (1) As regards the proposed purchase from the Dominion Government of the Toronto Suburban Railway, and the Niagara, St. Catharines and Toronto Railway, it is to be noted that the various municipalities along the route of these railways have not yet passed by-laws to guarantee their respective shares of the necessary debentures.
- (2) The estimates for the projected radials in each case show a small surplus on a year's operation. The attention of the Government is however called to the fact that interest on the necessary debentures is calculated at 5 per cent. It is clear that such debentures will have to bear an interest rate of at least 6 per cent. This increase in the interest rate alone turns every estimated surplus, except one, into a deficit. In the one exception the estimated surplus is reduced to \$11,038.

- (3) It is proposed to issue the debentures for the cost of construction for 50 years. There is no allowance in the estimates for depreciation, renewals or sinking fund, except in the case of the Toronto, Port Credit and London Railway, where \$137,342 is allowed for sinking fund. The rolling stock, electric equipment and tracks would have to be renewed at least once within the fifty years, and some parts perhaps twice. Making the proper allowance for sinking fund and depreciation will also turn the small estimated surpluses into large deficits. In any event it is not good financing to make no allowance for sinking fund renewals or depreciation.
- (4) It is said that the estimated operating expenses are calculated on a low basis. The percentage of the operating expenses to earnings per mile of all the other radials in Ontario, including the London and Port Stanley railway, is however, considerably greater than the estimated operating expenses of the proposed lines.
- (5) The estimated earnings of two of the proposed radials, taken on a mileage basis, are also greatly in excess of those of any existing radial in Ontario, including the London and Port Stanley Railway.
- (6) The estimates given for all the proposed radials are in bulk, that is to say, a lump sum is given in each case as the cost of construction, a lump sum as the annual cost of operation, and a lump sum as the annual earnings. It would be most desirable to have all these estimates in detail. Many questions arise which cannot be determined when the estimates are given in bulk. For instance: How many employees is it estimated will be required, and what is the rate of wage in each classification proposed to be paid them? Also what rates for passengers and freight are proposed to be charged? Under "The Ontario Railway Act." two cents per mile is the maximum passenger rate, but it would appear that the estimated earnings for the proposed radials are based on a higher rate than this.
- (7) With reference to the railways which it is proposed to purchase from the Government, it would not appear to be wise to complete such purchase without first having had a thorough examination and valuation by some independent person or body.

Some of the foregoing arguments may not be valid and none of them may be conclusive against the ultimate adoption of the proposals. They are, however, as it appears to the Government, conclusive against their adoption at the present time and until the whole subject has been fully and exhaustively examined, because, if and when the Government goes ahead, the Province will be committed not only to the present proposals, but to a Province-wide publicly owned radial electric scheme operated by the Hydro-Electric Power Commission, involving an ultimate mortgage of the Province and of the municipalities interested of scores of millions of dollars. The matter is of far too great importance to be dealt with hastily or lightly. The Government has, therefore, decided to appoint a Commission to go into the whole problem from every point of view and present a report for its information and guidance.

The Commission will be requested to proceed immediately with its task, to hold public inquiries, and to report without unnecessary delay. In the meantime all action in the direction of further outlays or the assumption of further responsibilities in radial matters by the Electric Commission will be stayed.

## APPENDIX 2

(Signed) "R.F.S."  
 (Signed) "A.F.M."  
 (Signed) "W.A.A."  
 (Signed) "C.H.M."

## OUTLINE OF COURSE OF COMMISSION

The first Order-in-Council appointing the Commission was dated July 16th, 1920. By it T. A. Russell was appointed a Commissioner. A meeting of Commissioners was arranged for 19th July, 1920, and three commissioners met on that date, the resignation of Mr. Russell not having been obtained in time to call off the meeting, and Mr. McCallum, one of the



Commissioners, not being reached in an attempt to prevent his coming. The Chairman and Commissioners Amos and Bancroft met for a preliminary discussion.

The final Order-in-Council appointing this Commission and replacing Mr. Russell by Brig.-General Mitchell, is dated July 21st, 1920, and the first meeting of all the Commissioners was held on July 22nd. Meetings more or less informal were held by the Board on the 26th and 27th. The first public meeting was held on July 28th, 1920.

At a previous meeting, and after consultation with Mr. Hellmuth, the counsel who had been retained by the Commission, it was decided that the proper course was to prepare and serve requisitions on the Hydro Electric Railway Commission and the Municipal Hydro Electric Radial Railways Association. These were prepared and on the 28th July, copies filed and delivered. It was, as the Commissioners understood, on all hands agreed, that the material asked to be supplied by such requisitions was such as was absolutely necessary to be obtained before the oral evidence could be taken and proceeded with.

Within a day or two the question was raised by the Hydro Electric Power Commission of Ontario as to whether the estimates required to be delivered pursuant to the requisitions, should be brought up to date or not. It had been considered by all parties that the requisitions could be supplied within a couple of weeks if not brought up to date, and within a couple of weeks further time if so brought up. Intimation by letter was given to counsel for the Hydro Electric Power Commission, that commissioners would be content to have supplied at first the material and estimates then in the possession of the Hydro. It was thus expected that by the end of July the productions would be in.

The adjournment made on July 28th, was in consequence expected to last for about a month.

During August and the first days in September, members of the Commission had utilized the adjournment by making a tour of the territory in Ontario, through which the proposed system would run. Some of the productions came in during September, but all had not been received by the 28th, when a further meeting was held. It was then decided better, even though the requisitions had not fully been completed, to commence taking evidence and Mr. F. A. Gaby was called. The requisitions were not substantially complied with until sometime in the early part of October.

Mr. Gaby was examined on the 29th and 30th of September.

Some little difficulty then arose about the productions being still incomplete, and it being found difficult to continue the examination of Mr. Gaby without them, it was agreed to adjourn until October 14th, when it was expected the material would be completed. On that day the examination of Mr. Gaby was continued, and on the next day, when the Commission adjourned until Tuesday, October 19th. The Commission sat on that day and on the 20th, 21st, 22nd, 25th and 26th, when Mr. Gaby's evidence was concluded.

A request was then made to counsel representing the Hydro-Electric Power Commission, the Municipal Hydro Electric Railway Association, and those questioning the propriety of the proposed purchase to know if they desired at this point to adduce further evidence. Neither offered to do so.

At the conclusion, the following discussion occurred, as appears by the record:

**"THE CHAIRMAN:** Are the representatives of the Hydro desirous now of calling any further evidence supplementary to the evidence that has been given by Mr. Gaby.?" Of course he comes here at the request of this commission that is sitting investigating the matter. We have made requisitions for certain material to be supplied, and it is at our request Mr. Gaby was called for the purpose of explaining and giving evidence to elucidate and clear up these statements and productions that have been put in. What is the attitude of the Hydro people upon that? Do they desire to supplement Mr. Gaby's evidence now with any further evidence at this time?"

**"Mr. Macinnes:** My suggestion is, if the Commission will agree with it, that Mr. Gaby was brought here, as you have just stated, not by the Hydro Commission but by this Royal Commission. Certain information has been obtained from him, and on his examination certain points by way of criticism were raised. I understand that it is contemplated by my friend, Mr. Robertson, that other critical evidence will be brought by him before this Commission.

It would therefore seem obvious, I think, that it would be better that all criticism should be dealt with at the one time, and therefore that when there has been brought before this Commission any elaboration there may be on any points that Mr. Robertson has called attention to, the Commission should then deal with those, with any such evidence as they feel will be of assistance and will satisfy the Commission as to any difficulties that may be raised." and at p. 1240 the following:

"*The Chairman:* Nobody is ready to offer us any further technical evidence at the present time?"

"*Mr. Robertson:* I am not, at the present time; I would not attempt to bring it at this stage."

The position of the Commissioners was that of men appointed to conduct an inquiry. We hoped and expected that the Hydro Electric Power Commission would put in all the evidence, documentary and oral which they had in their possession in support of the scheme. Instead of that, they rather took the position of a defendant awaiting attack. Mr. Robertson's position representing those criticising the scheme, was that at this point the experts whom he was retaining could not, until they had had an opportunity to examine the scheme fully, be called upon to testify.

The result was the Commission had to map out and follow its own course. It was thought appropriate that the evidence of Mr. Gaby should be supplemented by that of Mr. Murray, an engineering expert who had reported to the Hydro Electric Power Commission on the whole scheme on May 28th, 1920. It was arranged that his attendance should be obtained, if possible, by Mr. McKay or Mr. McInnes, and an adjournment was made to fix a date when he could be present. His convenience had to some extent to be consulted and though he was expected to attend earlier, he, in fact, did not come until the 22nd day of November. Meantime the Commissioners had spent part of the intervening time in visiting certain cities in the United States where electric railways and systems were in operation, and could be examined and information obtained on the spot. The judicial appointments of the Chairman and convenience of counsel and Commissioners had, from time to time, to be consulted to some extent.

The next sitting of the Commission was held on November 22nd, when Mr. W. S. Murray was called.

About this time a suggestion was made by the members of the Commission to counsel about the propriety of endeavoring to agree upon three or four expert operating electric railway men, who might be asked to make a thorough investigation of the proposed system, and give evidence. It was suggested that much time and expense might thus be avoided. To this proposition, counsel for the Hydro Power Commission and the Municipal Hydro Electric Radial Railways Association were unwilling to accede.

It was considered indispensably necessary that officials from all the railways, steam and electric, operating in those portions of the Province through which the railways in question would run, should be called for the purpose of learning to what extent the public was being served by them; their annual revenues and expenditures and the like, and the nature of their business. Accordingly the following witnesses were called and examined:

C. E. Friend, Comptroller Canadian National Railways, New York Central.

G. C. Royce, Manager, Toronto Suburban Railway.

E. P. Coleman, General Manager, Dominion Power and Transmission Lines.

from the 23rd to 25th November, and

W. M. Neal, Assistant General Superintendent of Ontario, Western Section C.P.R., on December 1st.

C. Bowker, General Superintendent Eastern Lines (Ontario) of G.T.R. System.

W. M. Kirkwood, General Manager of the Grand River Railway and Lake Erie and Northern, both electric railways, subsidiaries of the C.P.R., and

George L. Martin, General Manager of the Toronto, Hamilton and Buffalo Railway. on December 1st, 2nd and 3rd.

The Commissioners also decided that they must retain experienced engineers and operating men, and ask them to make an independent investigation of the scheme. Accordingly Mr. F. P. Gutelius, Vice-President and General-Manager of the Delaware and Hudson Railway



was chosen. He had had great experience on steam lines in Canada and latterly on steam lines and subsidiary electric lines in the United States. Mr. Tye, a steam railway engineer of wide experience, who had previously made a report on a proposed new electric railway in a part of the territory in question, was also retained.

Mr. W. A. McLean, Deputy Minister of Highways was called on November 25th, and gave evidence as to the Government plans and expenditures in connection with their improved highways policy.

Mr. Tya was called on 29th and 30th of November.

The Commission adjourned on December 3rd to December 10th, when Mr. Gutelius having finished his examination of the documents and facts deemed by him advisable and necessary, and after making a personal inspection of the lines and territory in company with officials of the Hydro Electric Power Commission and a trip over the London and Port Stanley Railway with and at the request of Sir Adam Beck, was called. He continued his testimony on the 11th and 13th.

When in Cleveland, the Commissioners were recommended to call as a witness, F. W. Coen, Vice-President and General Manager of the Lakeshore Electric Railway and its subsidiary companies as an experienced operating man, to give evidence with respect to the operations of electric railways in and around Cleveland, said to be a city where experiments in and information gained in the operation of electric railways had been as extensive as in almost any part of the United States. He was called and testified on December 14th.

It seemed then appropriate and necessary that the officials of the Hydro who had been entrusted by Mr. Gaby, to a large extent with the preparation of the estimates which had been put in before the Commission, should be called, so as to obtain the benefit of their evidence with reference thereto. We were told that no one of these officials of the Hydro could, owing to their other engagements, and particularly with reference to the pending consideration of and work in connection with the so-called Toronto Hydro Clean-up, be spared to attend for some time. We thought there should be little difficulty in calling one of the officials at a time, but in the end consented to an adjournment until the beginning of January. It was not, however, until January 10th that Mr. Hewson was available. He had prepared the estimates for the electrical equipment, but was assigned the duty, as well, of making more for operating costs and revenues. His examination continued during the 11th, 12th, 13th and 14th, when an adjournment was made, and he was requested to endeavor to find certain tabulated and classified statements referred to in a published report of the Hydro Electric Power Commission. He returned to the stand on January 24th, and continued to testify during the 25th and 26th. At the conclusion of Mr. Hewson's evidence, it was requested and arranged that counsel for the Hydro Electric Power Commission and the Municipal Hydro Electric Radial Railways Association should prepare a freight brief and hand it in later.

W. R. Robertson, General Superintendent of Hydro Railways was examined on January 27th and 28th, and F. W. Fairlie, Railway Engineer for the Hydro Electric on January 31st.

Mr. R. S. Robertson had been notified to get his witnesses ready by that date, and began calling them.

Witnesses in connection with motor truck transportation were first called, and local witnesses such as mayors, reeves, councillors, etc., during February 1st, 2nd, 3rd, and 4th, also C. A. Matthews, Deputy Treasurer, of the Province of Ontario, with reference to its debt and the advances and commitments with respect to the Hydro.

An adjournment was made from February 4th to February 21st, during which the Chairman had judicial engagements which he was unable to avoid. Counsel engaged before the Commission had also got in difficulty over postponed cases.

On the 21st, Mr. Robertson continued with his witnesses, and on the 22nd, 23rd, 24th and 25th. Mr. Robertson having completed the testimony of his general witnesses desired an adjournment from February 25th to March 1st, to arrange to bring on his experts.

On March 1st, Dr. L. A. Herdt was called.

On March 3rd, 4th, 5th, R. M. Feustel.

On March 7th and 9th, C. E. Bailey.

On that day Mr. Robertson completed his evidence, having called in all, forty-six witnesses.

On March 9th, an adjournment was made under protest to March 28th, at the request of the Hydro Electric Power Commission's Counsel. On the latter date, counsel for that Commission and the Municipal Hydro-Electric Radial Railways Association began calling their witnesses, and continued on the 29th, 30th, 31st., April 1st, 4th, 5th, 6th, 7th, 8th, 11th, 12th, 13th, 14th, 15th, 18th, and 19th. On the latter date a further adjournment was made to April 25th, at the request of Hydro counsel.

On April 25th, Charles E. Lee was called. He was followed by Bion J. Arnold a consulting engineer of New York, and continued to testify on the 26th, 27th, 28th and 29th, when an adjournment was had until May 4th, at the request of the Hydro counsel to enable Mr. Arnold to go to New York to attend an important engagement.

On May 4th, 5th and 6th, Fred A. Sagar, an assistant of Mr. Arnold was called.

On May 9th, Mr. Arnold returned and continued his evidence on the 10th, 11th, 12th, 13th and again on the 16th and 17th. Mr. Sagar continued his testimony on the 17th, 18th, 19th, 20th, 26th, 27th, 30th, 31st and June 1st. On the latter date Charles L. Wilson, Assistant Manager of the Toronto and York Radial railway was called.

Certain officials of the Hydro, namely: Oswald Stanley, E. K. Bunnell, F. W. Fairlie (recalled), W. R. Robertson (recalled), and T. A. Wilkinson were examined on the remainder of that day and the 2nd of June, when an adjournment by consent of all parties was made to June 6th, when the Hydro completed its evidence.

Adjournment was then made until the 13th of June, to suit the convenience of Mr. Hellmuth and of Mr. Rifemberick, a witness retained by the Commission.

On June 13th the Commission again began calling witnesses. The Hon. Dr. Reid, Minister of Railways, was called and also Mr. Rifemberick on that day, and on the 14th.

On the 15th and 16th, Robert I. Todd of Indianapolis was called.

On the 17th, Henry H. Couzens, Manager of the Toronto Civic Transportation Commission and Charles A. Matthews (recalled). On the 20th and 21st, the evidence of Mr. Rifemberick was continued.

On the 22nd, J. H. Gundy, a broker and bond dealer was called, also E. L. Couzens, Manager of the Toronto Harbour Commission. F. A. Sagar was then recalled shortly by the Hydro.

The last witness called by the Commission was F. P. Gutelius, and the evidence was closed on June 22nd. An adjournment was made from that date to June 27th, to enable counsel to prepare their argument. It took place as follows.

Mr. R. S. Robertson, June 27th and part of the 28th.

Mr. McKay, K.C., and Mr. C. C. Robinson, part of June 28th, 29th, and 30th.

Mr. Hellmuth, part of July 1st and July 2nd.

#### APPENDIX 3.

(Signed) "R.F.S."  
 (Signed) "A.F.M."  
 (Signed) "W.A.A."  
 (Signed) "C.H.M."

Statement showing various estimates of cost of acquiring and constructing the proposed Hydro Electric Radials. Price, Waterhouse & Co., Royal Bank Building, Toronto, Ont., Canada.



## ESTIMATED COST OF ACQUIRING AND CONSTRUCTING THE PROPOSED HYDRO ELECTRIC RAILWAYS, AS SET FORTH

(a) ESTIMATES PREPARED BY THE HYDRO ELECTRIC POWER COMMISSION

(b) IN STATEMENT PREPARED FROM SUCH ESTIMATES OR

(c) FROM DATA PREPARED FOR THE HYDRO POWER COMMISSION BY BION J. ARNOLD.

Particulars	Hydro Electric Power Commission Original Estimate of Construction Costs	Construction Costs as submitted to Municipalities for voting	Construction Costs as submitted to the Ontario Govern- ment per Govern- ment Statement dated July 6th, 1920	Construction Costs as prepared and submitted to the Hydro Radial Com- mission by the Hy- dro Electric Power Commission	Construction Costs as prepared by Bion J. Arnold for the Hydro Electric Power Commission per his supplement to Report
Toronto, Port Credit, St. Catharines Line .....	1. \$21,648,635.00	2. \$16,249,394.00	\$22,298,635.00	3. \$20,603,953.30	5. \$17,850,000.00
Toronto Eastern Line .....	2. 6,510,794.00	1. 8,360,794.00	8,360,794.00	3. 9,164,132.35	5. 8,189,000.00
Hamilton, Guelph, Elmira Line .....	2. 4,755,659.00	1. 6,530,659.00	6,530,659.00	3. 7,192,895.00	5. 6,002,500.00
Toronto Suburban Line ....	6.	6.	6.	3. 3,591,774.00	5. 3,752,000.00
Niagara Central Line .....	6.	6.	6,170,374.00	3. 5,091,330.00	5. 4,960,000.00
	\$32,915,088.00	\$31,140,847.00	\$43,360,462.00	\$45,644,084.65	\$40,753,500.00

## NOTES

1. Items marked 1. (Exhibit 62, 44 and 57) include barns, equipment, etc.  
 2. Items marked 2. (Exhibit 61, 63 and 49) do not include barns, equipment, etc.

3. Items marked 3. represent estimated cost, including equipment to 1924—1925 or 1926.  
 4. Items marked 4. represent estimated cost, including equipment to 1924—1925 or 1926.

Terminal and deducting from construction costs 15% to reduce costs to what was considered by Mr. Arnold as the approximate current costs.  
 5. Items marked 5. represent estimated cost, including equipment to 1924—1925 or 1926 after deducting 15% from estimated costs to reduce figures to what was considered by Mr. Arnold as the approximate current costs; but nothing is included for estimated cost of Toronto Terminal.

6. Items marked 6. represent figures not prepared or not available.

7. Items marked 7. represent figures shown thereunder as per statement prepared by Price, Waterhouse & Co., from data supplied by the Hydro Electric Power Commission.

## APPENDIX 4.

(Signed) "R.F.S."

(Signed) "A.F.M."

(Signed) "W.A.A."

(Signed) "C.H.M."

- (a) Statement Comparing the Proposed Hydro Electric Radials as a Whole with Certain Lines in the United States.
- (b) Operating Statement of Each Line Comprising the Proposed System Together with Certain Explanatory Notes

JULY 26TH, 1921

Price, Waterhouse &amp; Co., Royal Bank Bldg., Toronto, Ont., Canada.

Royal Bank Building,

Toronto, July 25th, 1921.

Honourable Justice R. F. Sutherland, Radial Railway Commission, Toronto, Ontario.

Dear Sir:—

We have now prepared and submit herewith a revised "Statement comparing estimated Revenue and Expenses of the proposed Hydro Electric Radial lines with certain lines in the United States," and we are also submitting revised operating statements of the several lines included in the proposed Hydro Electric Railway system. These statements supersede and are to replace those sent you on the 4th of December and 16th of May last.

The statements submitted herewith are drawn up along the same general lines as the former statements; the present ones however, will be found more complete as a result of our embodying therein certain data which we have now received from the Hydro Electric Power Commission and from the Washington, Baltimore and Annapolis Electric Railroad Company. It will be noted that we have entirely omitted the figures relating to the Detroit United Railways, as we were unable to secure the necessary detailed information from the Hydro Electric Power Commission. It will also be observed that we do not show a division of the fixed charges in the case of the Union Traction Company of Indiana, as the necessary figures were not available. On the other hand, certain statistical data, such as percentage of earnings and expenses, etc., have been added.

Certain changes have also been made in the operating statements of the several proposed Hydro lines relating to mileage figures. We could not, however, complete the statements in respect of the population statistics, as the Hydro Electric Power Commission did not have the required information in such shape as to be useful to us.

With regard to the statement referred to by us in our letter of the 21st January, 1921, under Section No. 8, we are advised by the Hydro Electric Power Commission as follows:

"We have not attempted to work out the distribution of the guarantee between the various municipalities to correspond to the estimated costs as submitted to the Radial Railway Commission. This is work that requires the most careful consideration and at the present time we will be unable to have it undertaken."

The figures used by us in preparing the attached statements have been extracted from exhibits on file with the Radial Railway Commission or were supplied us by the Hydro Electric Power Commission and the Washington, Baltimore and Annapolis Electric Railroad Company. Whilst the figures are in the main self-explanatory, there are certain features to which we beg to draw your attention:

- (1) The figures relating to the proposed Hydro Electric Radials are, of course, mere estimates.
- (2) The estimated operating figures of the Hydro Electric Radials are for the year 1925, whilst those of the lines with which they are compared are for the year 1919.
- (3) Mileage or track conditions are different in each case, e.g., the Lake Shore Electric Railway of Ohio is, we understand, entirely a single track road, whilst each of the other lines have more or less double track.



- (4) The Revenue and Expenses of the Northern Ohio Traction and Light Company are largely augmented by auxiliary operations. We were able to ascertain the income from "Auxiliary" operations, but were unable to separate the expenses.
- (5) We have no means of telling whether the operating expenses have been uniformly classified; nor have we any knowledge of the basis upon which depreciation has been calculated and charged.
- (6) The comparison of the Fixed Charges is of little or no value. The proposed Hydro Electric Radials are to be entirely financed by Bond Issues, with a consequent fixed heavy interest charge. In the case of the other lines used in the Comparative Statement, it would appear that the financing has been chiefly by the sale of Capital Stock, with the result that the interest charges are out of all proportion to that of the proposed Hydro Radial lines.
- (7) We were unable to ascertain the reason why the Union Traction Company of Indiana made such a poor net showing in 1919. It is possible that an explanation might convey an entirely different view of the Company's operations.

We shall be glad to give you any additional explanations of the attached statements or assist you in any way we can.

Yours very truly,

(Signed) Price, Waterhouse & Co.

STATEMENT COMPARING ESTIMATED REVENUE AND EXPENSES OF THE PROPOSED HYDRO ELECTRIC RADIAL LINES  
WITH CERTAIN LINES IN THE UNITED STATES

Particulars	Proposed Hydro Electric Radials (All Lines) Year 1925		Washington, Baltimore and Annapolis Year 1919		Lake Shore Electric Railway of Ohio Year 1919		Union Traction System of Indiana Year 1919		Northern Ohio Traction and Light Co.—Year 1919	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
Miles of Track	421,291		106.16		151.49		452.95		242.20	
Miles of Route	327,797		61.92		151.49		427.20		172.70	
<b>REVENUE</b>										
Passenger.....	\$4,937,624.00	61.1	1,967,672.79	90.7	1,515,644.78	73.3	3,037,990.61	80.3	5,722,406.34	61.9
Freight.....	2,877,557.00	35.6	1,679,957.57	7.7	388,839.02	18.8	511,162.59	13.5	347,296.79	3.8
Miscellaneous.....	268,760.00	3.3	32,489.39	1.6	1,667,740.76	7.9	232,400.42	6.2	3,158,136.46	34.3
Total Revenue.....	\$8,083,941.00	100.	2,168,119.75	100.	2,667,224.56	100.	3,781,553.62	100.	9,227,839.59	100.
Passenger Revenue per mile of track.....	\$ 11,705.00		18,535.00		10,000.00		6,707.00		23,646.00	
Freight Revenue per mile of track.....	6,833.00		1,582.00		2,566.00		1,129.00		1,435.00	
Other Revenue per mile of track.....	638.00		306.00		1,075.00		513.00		13,035.00	
Total Revenue per mile of track.....	\$ 19,176.00		20,423.00		13,641.00		8,349.00		38,116.00	
Passenger Revenue per mile of route.....	\$ 15,064.00		31,777.00		10,000.00		7,111.00		33,135.00	
Freight Revenue per mile of route.....	8,779.00		2,712.00		2,566.00		1,197.00		2,011.00	
Other Revenue per mile of route.....	820.00		526.00		1,075.00		544.00		18,287.00	
Total Revenue per mile of route.....	24,663.00		35,015.00		13,641.00		8,852.00		53,433.00	
<b>EXPENSES:</b>										
Operating Expenses (including depreciation)										
Maintenance—Way and Structures.....	\$ 742,017.00	16.5	317,538.37	21.0	226,580.44	16.3	489,005.77	18.1	833,502.43	12.8
Maintenance—Equipment.....	772,277.00	17.3	281,205.82	18.6	152,623.84	10.9	312,107.36	11.6	688,326.56	10.9
Power and Expense.....	604,219.00	13.5	133,855.73	8.9	346,544.11	24.9	777,253.53	28.9	1,619,882.96	25.0
Conducting Transportation.....	1,481,633.00	32.9	513,899.90	33.9	464,010.84	33.3	722,246.89	26.8	1,974,550.51	30.4
General Expenses.....	891,196.00	19.8	266,578.27	17.6	203,393.24	14.6	395,254.52	14.6	1,362,252.55	20.9
Total Operating Expenses.....	\$4,491,342.00	100.	1,513,078.09	100.	1,393,152.47	100.	2,695,868.07	100.	6,478,515.01	100.
Ratio of Operating Expenses to Revenue.....		55.7	69.8		67.4		71.2		70.2	
Operating Expenses, per mile of track.....	\$ 10,660.00		.....		9,196.00		5,951.00		26,770.00	
Operating Expenses, per mile of route.....	\$ 13,702.00		.....		9,196.00		6,311.00		37,513.00	
Fixed Charges (Exclusive of depreciation):										
Taxes.....	\$ 138,336.00		128,344.89		96,891.70		1,085,168.58		499,610.00	
Interest.....	2,651,561.00		295,202.43		339,801.04		—		893,825.51	
Total Fixed Charges.....	\$2,789,897.00		423,547.32		436,692.74		1,085,168.58		1,393,435.51	
Ratio of Fixed Charges to Revenue.....		34.4	19.5		21.1		28.66		15.1	
GRAND TOTAL—ALL EXPENSES.....	\$7,276,239.00		1,936,625.41		1,829,845.21		3,781,036.65		7,871,950.52	
NET SURPLUS OR REVENUE.....	\$ 807,702.00		231,494.34		237,379.35		516.97		1,355,889.07	
Ratio of Net Surplus to Revenue.....		9.9	10.7		11.5		.14		14.7	
Net Surplus, per mile of track.....	\$ 1,917.00		2,180.00		1,566.00		1.15		5,603.00	
Net Surplus, per mile of route.....	2,464.00		3,739.00		1,566.00		1.21		7,851.00	
<b>ESTIMATED COST OR BOOK VALUE OF</b>										
Ways, Structures, Equipment, etc.....	\$45,644,084.35		10,843,283.13		14,161,653.06		23,384,002.19		33,635,935.05	
Ways, Structures, Equipment, etc. per mile of track.....	\$ 108,343.00		102,140.00		93,840.00		51,620.00		139,075.00	
Ways, Structures, Equipment, etc., per mile of route.....	\$ 139,248.00		175,116.00		93,840.00		54,738.00		194,765.00	



## TORONTO, PORT CREDIT, ST. CATHARINES LINE

## SUMMARY OF REVENUE AND EXPENSES

PREPARED FROM ESTIMATES SUPPLIED HYDRO-ELECTRIC RADIAL  
COMMISSION BY THE HYDRO-ELECTRIC POWER COMMISSION.

	1925	1930	1935
Miles of Route .....	72.77	72.77	72.77
Population Served, Exhibit 52, p. 12 .....	170.407	211.195	260.105
<b>REVENUE:</b>			
Passengers .....	\$1,694,676 00	\$2,034,130 00	\$2,457,220 00
Freight .....	1,408,250 00	1,705,337 00	2,023,725 00
Miscellaneous .....	50,000 00	60,000 00	70,000 00
Total Revenue, Exhibit 51, p. 7 .....	\$3,152,926 00	\$3,799,467 00	\$4,550,945 00
Passenger Revenue, per mile, Route .....	\$ 23,300 00	\$ 27,964 00	\$ 33,780 00
Freight Revenue, per mile, Route .....	19,360 00	23,445 00	27,820 00
Miscellaneous Revenue, per mile, Route .....	687 00	825 00	960 00
Total Revenue, per mile of Route .....	\$ 43,347 00	52,234 00	62,560 00
PASSENGER REVENUE, PER CAPITA .....	\$ 9 95	\$ 9 65	\$ 9 45
<b>EXPENSES:</b>			
Operating Expenses:			
Maintenance-Way and Structures .....	\$ 103,000 00	\$ 154,500 00	\$ 185,400 00
Maintenance-Equipment .....	124,583 00	219,496 00	285,755 00
Power Expense .....	229,455 00	259,116 00	315,326 00
Conducting Transportation .....	486,310 00	529,718 00	609,887 00
General Expenses .....	357,168 00	410,778 00	471,299 00
Depreciation .....	214,389 00	234,654 00	268,173 00
Total Operating Expenses, Exhibit No. 51, page 6 .....	\$1,514,905 00	\$1,808,262 00	\$2,135,840 00
Operating Ratio .....	48%	47.6%	47%
Operating Charge per mile of Route .....	\$ 20,826 00	\$ 24,858 00	\$ 29,362 00
Fixed Charges:			
Taxes .....	\$ 71,336 00	\$ 71,336 00	\$ 71,336 00
Interest .....	1,236,237 00	1,279,833 00	1,355,559 00
Sinking Fund .....			206,040 00
Total Fixed Charges, Exhibit No. 51, page 6....	\$1,307,573 00	\$1,351,169 00	\$1,632,935 00
GRAND TOTAL—All EXPENSES: .....	\$2,822,478 00	\$3,159,431 00	\$3,768,775 00
NET SURPLUS .....	\$ 330,448 00	\$ 640,036 00	\$ 782,170 00
NET SURPLUS, per Mile of Route .....	\$ 4,543 00	\$ 8,800 00	\$ 10,753 00

NOTE:—Population figures do not include the population of Toronto.

## TORONTO, PORT CREDIT, ST. CATHARINES LINE

## NOTES RE REVENUE AND EXPENSES.

## RATES

Passenger—Standard rate, 2.875c per mile.

Interurban averages,  $2\frac{1}{4}$ - $2\frac{1}{2}$ c per mile.

Suburban averages,  $1\frac{1}{2}$ c per mile.

Freight—Standard rate in effect on Steam Railways as of 30th May, 1920, which has been increased by 40% in August, 1920. Full details as to how total was made are not available.

Interest—6%

Sinking Fund—1% starting 1935. Based on Capital outlay, \$20,604.00.

Depreciation—Various rates. Consideration being given different classes of assets.

Taxes—Various rates. No provision made for increase of rate or assessment in respect of future periods.

Car Rental—Standard rates. Amount included in General Expenses.

Power—Estimated used, 1st year .....	6,500 — 7,000 H.P.
5th year .....	7,500 — 8,000 H.P.
10th year.....	8,000 — 9,000 H.P.

Cost—1925, 1930, 1935:

At Toronto .....	\$18.00 per H.P.
At New Toronto .....	25.00 " "
At Port Credit .....	20.00 " "
At Bronte .....	21.00 " "
At Hamilton .....	15.50 " "
At Grimsby .....	26.00 " "
At St. Catharines .....	20.00 " "

## TORONTO EASTERN LINE

## SUMMARY OF REVENUE AND EXPENSES

PREPARED FROM ESTIMATES SUPPLIED HYDRO-ELECTRIC RADIAL  
COMMISSION BY THE HYDRO-ELECTRIC POWER COMMISSION

	1924	1929	1934
Miles of Route .....	43.83	45.42	45.42
Population Served, Exhibit No. 47 .....	95,643	126,486	156,285
REVENUE:			
Passengers .....	\$ 940,000 00	\$1,255,000 00	\$1,585,000 00
Freight .....	225,000 00	278,000 00	330,000 00
Miscellaneous .....	25,000 00	30,000 00	35,000 00
Total Revenue, Exhibit No. 34, p. 9.....	\$1,190,000 00	\$1,563,000 00	\$1,950,000 00
Passenger Revenue, per mile of route .....	\$ 21,447 00	\$ 27,631 00	\$ 34,897 00
Freight .....	5,110 00	6,120 00	7,265 00
Miscellaneous .....	570 00	660 00	770 00
Total Revenue per mile of route .....	\$ 27,127 00	\$ 34,411 00	\$ 42,932 00
Passenger Revenue, per capita:			
Suburban .....	\$ 7 85	\$ 7 90	\$ 8 10
Interurban .....	14 00	14 00	14 00
All passengers .....	9 85	9 95	10 15



## EXPENSES:

## Operating Expenses:

Maintenance .....	\$ 55,000 00	\$ 93,500 00	\$ 99,000 00
Maintenance Equipment .....	43,700 00	107,854 00	142,901 00
Power Expense .....	99,700 00	134,750 00	154,800 00
Conducting Transportation .....	194,469 00	235,980 00	257,310 00
General Expense .....	113,900 00	133,200 00	152,700 00
Depreciation .....	82,642 00	111,640 00	120,243 00

## Total Operating Expenses,

Exhibit No. 34, page 6 .....	\$ 589,411 00	\$ 816,924 00	\$ 926,954 00
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Operating Ratio .....	49.5%	52.3%	47.5%
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Operating Charges per mile of route .....	\$ 13,427 00	\$ 17,986 00	\$ 20,408 00
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## Fixed Charges:

Taxes .....	\$ 31,000 00	\$ 34,000 00	\$ 37,500 00
Interest .....	549,851 00	605,862 00	660,084 00
Sinking Fund .....			110,014 00

Total Fixed Charges, Exhibit No. 34, page 9 .....	\$ 580,851 00	\$ 639,862 00	\$ 807,598 00
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GRAND TOTAL—ALL EXPENSES .....	\$1,170,262 00	\$1,456,786 00	\$1,734,552 00
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NET SURPLUS .....	\$ 19,738 00	\$ 106,214 00	\$ 215,448 00
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NET SURPLUS PER MILE OF ROUTE .....	\$ 450 00	\$ 2,339 00	\$ 4,744 00
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## TORONTO EASTERN LINE

## NOTES RE REVENUE AND EXPENSES.

## RATES

Passenger—Standard 2.875c per mile.

Urban, 4c, 5c and 6c per ride.

Interurban, based on estimated revenue of:

\$14.00 per capita—Population 1924, 31,208; 1929, 42,032; 1934, 54,300.

See Exhibit No. 47 for full particulars.

Freight—Standard rate as in effect on Steam Railways, 30 May, 1920, which has been increased by 40% in August, 1920. Full details of freight revenue are not available.

Interest—6%

Sinking Fund 1% starting 1935. Based on Capital outlay of \$11,001,400.00.

Depreciation—Various rates. Consideration being given to different classes of assets.

Taxes—Various rates. Some provision made for future increase; no details available.

Car Rental—Standard rates. Amount included in General Expenses.

Power—Estimated used: 1st year .....	3,500 — 4,000 H.P.
5th year .....	4,000 — 4,500 H.P.
10th year .....	4,500 — 5,000 H.P.

Cost—1925, 1930, 1935:

At Toronto .....	\$20.00 per H.P.
At Pickering .....	26.00 “ “
At Oshawa .....	30.00 “ “

HAMILTON, GUELPH, ELMIRA LINE  
SUMMARY OF REVENUE AND EXPENSES  
PREPARED FROM ESTIMATES SUPPLIED HYDRO ELECTRIC RADIAL  
COMMISSION BY THE HYDRO ELECTRIC POWER COMMISSION

	1925	1930	1935
Miles of route .....	82.847	82.847	82.847
Population Served, Exhibit No. 56 .....	97,424	116,176	139,072
<b>REVENUE:</b>			
Passenger Revenue per Capita:			
Passengers .....	\$ 831,447 00	\$ 992,039 00	\$1,186,412 00
Freight .....	453,580 00	543,496 00	651,395 00
Miscellaneous .....	37,000 00	42,000 00	47,000 00
Total Revenue, Exhibit No. 55, p. 7 .....	\$1,322,027 00	\$1,577,535 00	\$1,884,807 00
Passenger Revenue per mile of route .....	\$ 10,036 00	\$ 11,974 00	\$ 14,320 00
Freight Revenue per mile of route .....	5,475 00	6,560 00	7,863 00
Miscellaneous Revenue per mile of route .....	446 00	507 00	567 00
Total Revenue per mile of route .....	\$ 15,957 00	\$ 19,041 00	\$ 22,750 00
Passenger Revenue Per Capita:			
Urban .....	\$ 8 60	\$ 8 60	\$ 8 60
Interurban .....	7 85	7 85	7 37
All passengers .....	8 53	8 54	8 53
<b>EXPENSES:</b>			
Operating Expenses:			
Maintenance, way and structures .....	\$ 121,200 00	\$ 139,800 00	\$ 150,900 00
Maintenance equipment .....	48,795 00	91,512 00	106,257 00
Power Expense .....	87,209 00	102,276 00	116,803 00
Conducting Transportation .....	239,649 00	270,314 00	302,328 00
General Expenses .....	186,615 00	222,020 00	250,193 00
Depreciation .....	125,577 00	125,543 00	134,628 00
Total Operating Charges, Exhibit No. 55, Pages 6 and 9 .....	\$ 809,045 00	\$ 951,465 00	\$1,061,109 00
Operating Ratio .....	61.2%	60.3%	56.4%
Operating Charge per mile of route .....	\$ 9,777 00	\$ 11,485 00	\$ 12,808 00
Fixed Charges:			
Taxes .....	\$ 10,000 00	\$ 10,000 00	\$ 10,000 00
Interest .....	431,573 00	443,994 00	539,679 00
Sinking Fund .....			71,929 00
Total Fixed Charges, Exhibit No. 55, pages 6 and 9 .....	\$ 441,573 00	\$ 453,994 00	\$ 621,608 00
GRAND TOTAL—ALL EXPENSES .....	\$1,250,618 00	\$1,405,459 00	\$1,682,717 00
NET SURPLUS .....	\$ 71,409 00	\$ 172,076 00	\$ 202,090 00
NET SURPLUS PER MILE OF ROUTE: .....	\$ 862 00	\$ 2,079 00	\$ 2,439 00



HAMILTON, GUELPH, ELMIRA LINE  
NOTES RE REVENUE AND EXPENSES  
RATES

Passenger—Standard, 2.875c per mile.

Interurban average  $2\frac{1}{4}$ - $2\frac{1}{2}$  per mile.

Urban average  $1\frac{1}{2}$ c per mile.

Freight—Standard rate in effect on steam railways as of 30th May, 1920, which has been increased by 40% in August, 1920. Full details of total not available.

Interest—6%.

Sinking Fund—1% starting 1935. Based on Capital outlay of \$7,192,000.00.

Depreciation—Various rates. Consideration being given different classes of assets.

Taxes—Various rates. No provision made for increase of rate or assessment in respect of future periods.

Car Rentals—Standard rates. Amount included in General Expenses.

Power—Estimated used: 1st year .....	2,500	— 3,000 H.P.
5th year .....	2,750	— 3,250 H.P.
10th year .....	3,000	— 3,500 H.P.

Cost—1925, 1930, 1935:

At Dundas .....	\$15 50	per H.P.
At Galt .....	23 00	" "
At Waterloo .....	21 00	" "
At Guelph .....	20 00	" "

Passenger Revenue—Summary Exhibit No. 55, page 7, shows greater revenue than the details in Exhibit No. 56, pages 3, 5 and 7, as follows:

1925 .....	\$69,000 00
1930 .....	81,000 00
1935 .....	95,000 00

In arriving at passenger revenue certain benefits it was estimated, would accrue from connection with other lines of the system and the above figures, therefore, have been embodied in the statement.

TORONTO SUBURBAN LINE  
SUMMARY OF REVENUE AND EXPENSES  
PREPARED FROM ESTIMATES SUPPLIED HYDRO-ELECTRIC RADIAL  
COMMISSION BY HYDRO-ELECTRIC POWER COMMISSION

	1921	1925	1930
Miles of Route .....	71.31	73.31	73.31
Population Served .....			
REVENUE:			
Passengers .....	\$ 434,751 00	\$ 671,860 00	\$ 860,880 00
Freight .....	48,000 00	276,400 00	313,500 00
Miscellaneous .....	71,000 00	92,200 00	110,000 00
Total Revenue, Exhibit No. 67, p. 5 .....	\$ 553,751 00	\$1,040,468 00	\$1,284,380 00
Passenger Revenue per mile of route .....	\$ 6,183 00	\$ 9,164 00	\$ 11,743 00
Freight Revenue per mile of route .....	682 00	3,770 00	4,276 00
Miscellaneous Revenue per mile of route .....	1,010 00	1,257 00	1,505 00
Total Revenue per mile of route .....	\$ 7,875 00	\$ 14,191 00	\$ 17,524 00

## Passenger Revenue per capita:

Guelph .....	\$ 6 11	\$ 6 18	\$ 6 16
Suburban .....	—	14 18	15 05
Woodbridge .....	15 86	15 95	15 63
Local .....	—	—	—
All passengers .....	—	—	—

## EXPENSES:

## Operating Expenses:

Maintenance of Way and Structure .....	\$ 82,308 00	\$ 86,210 00	\$ 86,210 00
Maintenance of Equipment .....	61,420 00	92,695 00	115,340 00
Power Expenses .....	99,150 00	117,980 00	135,075 00
Conducting Transportation .....	141,301 00	221,670 00	252,640 00
General Expenses .....	41,430 00	84,227 00	95,843 00
Depreciation .....	62,824 00	70,544 00	75,539 00

Total Operating Expenses Exhibit No. 67, p. 3 .... \$ 488,433 00 \$ 673,326 00 \$ 760,647 00

Operating Ratio ..... 88.2% 64.7% 59.2%

Operating Charge per mile of route ..... \$ 6,947 00 \$ 9,184 00 \$ 10,376 00

## Fixed Charges:

Taxes .....	\$ 6,000 00	\$ 6,000 00	\$ 6,000 00
Interest .....	135,574 00	176,126 00	186,830 00
Sinking Fund .....	—	—	29,159 00

Total Fixed Charges, Exhibit No. 67, page 3 ..... \$ 141,574 00 \$ 182,126 00 \$ 221,989 00

GRAND TOTAL ALL EXPENSES ..... \$ 630,007 00 \$ 855,452 00 \$ 982,636 00

NET SURPLUS OR DEFICIT ..... \$ 76,256 00 \$ 185,016 00 \$ 301,744 00

NET SURPLUS PER MILE OF ROUTE ..... \$ 2,524 00 \$ 4,116 00

TORONTO SUBURBAN LINE  
NOTES RE REVENUE AND EXPENSES  
RATES

Passenger—Standard 2.875c per mile.

Interurban—Average, 2¼-2½c. per mile.

Suburban—Average 1½c per mile.

Freight—Standard rate in effect on Steam Railways on 30th May, 1920, which has been increased by 40% in August, 1920. Full details as to manner in which total was made up not available.

Sinking Fund—1% starting 1930. Based on capital outlay of \$2,915,900.00.

Interest—4½% and 6%. 4½% Bonds assumed, 1961, \$2,628,000.00.

6% New Issue, 50 years, \$287,900.00.

Depreciation—Various rates. Consideration being given to different classes of assets.

Taxes—Various rates. No provision made for increased rate or assessments as to future periods.

Car Rental—Standard rates. Amount included in General Expense.

Power—Estimates used:

1921 — 2,100 — 2,300 H.P.

1925 — 2,300 — 2,500 H.P.

1930 — 2,500 — 2,700 H.P.



Cost:—Islington 1921, 1925, 1930 ..... \$23.00 H.P.

Local, 1921, 1925, 1930 ..... 24.00 H.P.

Revenue shows large improvement in 1929-1935, because of proposed extension of Lake Shore—which will allow passengers and freight to be brought into the Toronto Terminal.

Passenger Revenue per Capita—Certain information as to population was not included in the Hydro Electric Power Commission's estimates, so we were unable to complete these figures.

The surplus for 1930 appearing in the foregoing statement is less by \$119,159.00 than the surplus shown by the Hydro Electric Power Commission estimates, as per Exhibit No. 67. This difference is made up as follows:

Sinking Fund charge shown in details, but not carried to the summary,

Exhibit No. 67 .....\$29,159 00

Error in addition of summary, Exhibit No. 67 ..... 90,000 00

Difference as above .....\$119,159 00

### NIAGARA CENTRAL LINE

#### SUMMARY OF REVENUE AND EXPENSES

#### PREPARED FROM ESTIMATES SUPPLIED HYDRO-ELECTRIC RADIAL COMMISSION BY HYDRO-ELECTRIC POWER COMMISSION

	1921	1926	1931
Miles of Route .....	61.55	61.55	61.55
Population Served .....	98,441	113,169	130,246

#### REVENUE:

Passenger .....	\$ 645,584 00	\$ 799,633 00	\$ 961,218 00
Freight .....	343,796 00	514,327 00	560,533 00
Miscellaneous .....	63,440 00	64,560 00	72,472 00

Total Revenue, Exhibit No. 69, p. 5.....\$1,052,820 00 \$1,378,520 00 \$1,594,223 00

Passenger Revenue, per mile of route .....\$ 10,488 00 \$ 12,991 00 \$ 15,617 00

Freight Revenue per mile of route ..... 5,585 00 8,356 00 9,107 00

Miscellaneous Revenue per mile of route ..... 1,030 00 1,049 00 1,177 00

Total Revenue per mile of route.....\$ 17,103 00 \$ 22,396 00 \$ 25,901 00

#### Passenger Revenue, per capita:

Urban—Niagara Falls .....	\$ 5 10	\$ 5 20	\$ 5 30
St. Catharines .....	3 60	4 10	5 00
Interurban—Main Line .....	9 10	9 40	9 50
Welland .....	6 90	7 10	7 20
Lake Shore .....	12 00	12 00	12 00
All passengers .....	6 55	7 04	7 38

#### EXPENSES:

##### Operating Expenses:

Maintenance of Way and Structures .....	\$ 132,600 00	\$ 138,600 00	\$ 145,600 00
Maintenance of Equipment .....	108,854 00	128,509 00	137,963 00
Power Expense .....	63,352 00	69,875 00	74,877 00
Conducting Transportation .....	299,503 00	339,535 00	365,152 00
General Expense .....	119,155 00	149,286 00	161,610 00
Depreciation .....	78,850 00	78,850 00	78,850 00

Total Operating Expenses, Exhibit No. 69, p. 3.....	\$ 802,314 00	\$ 904,655 00	\$ 964,052 00
Operating Ratio .....	76.2%	65.6%	60.4%
Operating Charge per mile of route .....	\$ 13,035 00	\$ 14,698 00	\$ 15,663 00
Fixed Charges:			
Taxes .....	\$ 15,000 00	\$ 15,000 00	\$ 15,000 00
Interest .....	214,154 00	257,774 00	298,514 00
Sinking Fund .....			43,638 00
Total Fixed Charges, Exhibit No. 69, page 5.....	\$ 229,154 00	\$ 272,774 00	\$ 357,152 00
GRAND TOTAL, ALL EXPENSES .....	\$1,031,468 00	\$1,177,429 00	\$1,321,204 00
NET SURPLUS .....	\$ 21,352 00	\$ 201,091 00	\$ 273,019 00
NET SURPLUS, PER MILE OF ROUTE .....	\$ 347 00	\$ 3,267 00	\$ 4,436 00

### NIAGARA CENTRAL LINE

#### NOTES RE REVENUE AND EXPENSES

##### Rates:

Passenger.

Freight—Those in effect in May, 1920.

Interest—4½%, 5% and 6%.

Bonds assumed, 1929, 5% ..... \$1,098,000 00

Bonds assumed 50-year, 4½% ..... \$2,446,374 90

\$3,544,374 90

Depreciation—Various rates—according to class of asset.

Taxes—Various rates—no provision made for future increase of assessment or rates.

Car Rentals—Standard rates—charge included in General Expenses.

Sinking Fund—1% starting 1931. Based on capital outlay of \$4,363,800.00.

Power—Estimated used—

1921 — 2,750 — 2,900 H.P.

1926 — 3,000 — 3,200 H.P.

1931 — 3,450 — 3,600 H.P.

Cost: 1921, 1926, 1931:

At Niagara Falls .....\$20.00 per H.P.

Operating Expenses for 1921 are less by \$999.00 than shown in Exhibit No. 69, the difference being an error in addition in Hydro Power estimate.

Fixed Charges for 1931 are more by \$15,000.00 than shown in Exhibit No. 69; this difference arising from neglect to carry estimated taxes for that year to the summary.

Revenue Estimates based on assumption that certain benefits will accrue from other lines of the system.

Passenger Revenue as per Exhibit No. 69, page 4, is more than shown in details, as per Exhibit No. 70, page 1, to the following extent:

1925 ..... \$27,710 00

1930 ..... \$33,700 00

The larger figures have been used.



## APPENDIX 5

(Signed) "R.F.S."

" "A.F.M."

" "W.A.A."

" "C.H.M."

STATEMENTS SHOWING APPORTIONMENT OF COST OF THE PROPOSED HYDRO  
ELECTRIC RADIALS PREPARED FROM DATA SUPPLIED THE RADIAL RAILWAY  
COMMISSION BY THE HYDRO ELECTRIC POWER COMMISSION  
JULY 26TH, 1921.

STATEMENT SHOWING APPORTIONMENT OF COST OF THE PROPOSED HYDRO ELECTRIC RADIALS PREPARED FROM DATA SUPPLIED  
THE RADIAL RAILWAY COMMISSION BY THE HYDRO ELECTRIC POWER COMMISSION.

Particulars	Mileage	Cost as submitted to voting units Exhibit No. 49	Population served Exhibit No. 58 Page 1	Cost per Capita of Population served	Total Population Exhibit 58 Page 1	Voting as per Exhibit No. 49 Total No. of cast	In favor of project	Against project	Date submitted to voters and result of voting Exhibit No. 49, page 3
<b>TOWNSHIPS—</b>									
Toronto.....	6.45	\$ 243,087.00	1,300	187.00	4,721	416	291	125	January 1917—Approved
Eglwicoke.....	2.53	401,335.00	1,800	223.00	5,883				Not submitted.
Trifolgar.....	8.01	538,735.00	1,280	421.00	3,285	199	174	25	January 1917—Approved
Nelson.....	4.71	374,812.00	800	469.00	2,540	231	150	81	March 1919—Approved
East Flamboro.....	4.01	266,626.00	700	381.00	2,258	261	144	117	January 1917—Approved
West Flamboro.....		266,626.00	350	100.00	7,432				Not Submitted.
Barton.....	51	284,484.00	7,000	40.75	7,432	790	416	374	January 1917—Approved
Saltfleet.....	8.97	1,092,296.00	3,500	287.00	3,798	345	104	241	March 1919—Deferred
North Grimsby.....	4.95	424,077.00	1,500	283.00	3,344	334	194	140	January 1917—Approved
Clinton.....	5.53	473,746.00	2,000	237.00	2,245	248	194	29	January 1917—Approved
Louth.....	5.87	563,505.00	1,000	563.00	2,141	282	275	7	January 1917—Approved
Grantham.....	1.41	128,280.00	500	256.00	3,228	477	382	95	January 1917—Approved
<b>VILLAGES—</b>									
New Toronto.....	1.29	82,250.00	1,863	44.00	1,863				Not submitted.
Port Credit.....	1.86	54,050.00	1,061	51.00	1,061				Not submitted
Grimsby.....	1.16	101,817.00	1,768	58.00	1,768	218	159	59	January 1917—Approved
Beamsville.....	1.08	51,469.00	1,116	46.00	1,116	188	165	23	January 1917—Approved
<b>TOWNS—</b>									
Mimico.....	1.01	111,200.00	2,098	53.00	2,098				Not Submitted.
Oakville.....	1.14	203,098.00	2,794	73.00	2,794	305	268	37	January 1917—Approved
Burlington.....	1.34	144,536.00	2,530	57.00	2,530	373	250	123	January 1917—Approved
<b>CITIES—</b>									
Toronto.....	5.25	4,240,196.00	473,829	8.90	473,829	9,607	6,172	3,435	Not submitted
Hamilton.....	5.69	5,869,286.00	107,832	55.00	107,832	1,424	1,049	375	January 1917—Approved
St. Catharines.....		623,750.00	19,070	32.75	19,070				January 1917—Approved
	72.77	\$16,249,394.00							

## NOTES

1. With regard to mileage in Townships, Towns, Villages and Cities it was explained by the Hydro Electric Power Commission that neither the mileage nor the cost within Townships, etc., was used as a basis to apportion cost, excepting in one or two instances; but that each township, etc., was treated as a partner in the whole project; and that the cost was apportioned on what is referred to by the Hydro Electric Power Commission as an "Equalized Assessment" plan.
2. The figures showing estimated population served for the Cities of Toronto, Hamilton and St. Catharines have never been prepared, so that the per capita cost has been based on the total population in each of these cases.
3. Subsequent estimates of population served, prepared by the Hydro Electric Power Commission, are proportionately much higher than the above in a number of cases.
4. It will be noted that no mileage figure appears opposite the amount apportioned to West Flamboro. The reason for this is, as explained by the Hydro Electric Power Commission that actually the proposed line does not enter this township but that it runs adjacent to the township line, close enough to render service; hence the apportionment of the amount stated above.



STATEMENT SHOWING APPORTIONMENT OF COST OF THE PROPOSED HYDRO ELECTRIC RADIALS; PREPARED FROM DATA SUPPLIED  
THE RADIAL RAILWAY COMMISSION BY THE HYDRO ELECTRIC POWER COMMISSION.

Particulars	Mileage	Cost as submitted to voting units Exhibit No. 44	Population served Exhibit No. 64 Page 1	Cost per Capita of Population served	Total Population Page 2	Voting as per Exhibit No. 44		Date submitted to voters and result of voting Exhibit No. 44
						Total No. of votes cast	In favor of project	
TORONTO EASTERN RAILWAY								
TOWNSHIPS—								
York.....	2.86	\$ 381,587.00	34,278	11.00	34,278	262	252	January 1920—Approved
Scarborough.....	10.09	892,686.00	4,000	223.00	6,034	553	464	November 1919—Approved
Pickering.....	9.99	482,050.00	3,600	134.00	4,268	509	473	October 1919—Approved
West Whitby.....	2.15	280,304.00	800	350.00	1,691	170	158	November 1919—Approved
East Whitby.....	2.98	299,943.00	1,400	213.00	3,097	345	301	November 1919—Approved
Darlington.....	5.59	429,680.00	1,200	358.00	3,426	210	186	November 1919—Approved
TOWNS—								
Whitby.....	2.56	277,955.00	3,469	80.00	3,469	390	347	November 1919—Approved
Oshawa.....	1.53	771,894.00	9,051	85.00	9,051	571	474	November 1919—Approved
Bowmanville.....	1.09	216,030.00	3,033	71.00	3,033	310	301	November 1919—Approved
CITY OF TORONTO								
	5.03	4,328,665.00	473,829	9.10	473,829	23,734	21,378	January 1920—Approved
	43.87	\$8,360,794.00						

## NOTES

1. With regard to Townships, Towns and the City of Toronto it was explained by the Hydro Electric Power Commission that neither the mileage nor the cost within the township etc., was used as a basis to apportion cost, excepting in the case of Toronto, but that each Township was treated as a partner in the whole project; and that the cost was apportioned on what is referred to by the Hydro Electric Power Commission as an "Equalized Assessment" plan.
2. In the case of York County and the City of Toronto figures showing the population served were not prepared, so that in each of these cases the total population has been used as the basis upon which per Capita Cost has been calculated.

STATEMENT SHOWING APPORTIONMENT OF COST OF THE PROPOSED HYDRO ELECTRIC RADIALS PREPARED FROM DATA SUPPLIED  
THE RADIAL RAILWAY COMMISSION BY THE HYDRO ELECTRIC POWER COMMISSION.

Particulars	Mileage	Cost as submitted to voting units Exhibit No. 57	Population served Exhibit No. 56 Page 2	Cost per Capita of population served	Total population Exhibit 56 Page 1	Voting as per Exhibit No. 57		Date submitted to voters and result of voting Exhibit No. 57
						Total No. of votes cast	In favor of project Against project	
HAMILTON, GALT, GUELPH AND ELMIRA LINE:								
TOWNSHIPS—								
Ancaster.....	7.72	\$ 174,080.00	210	\$ 829.00	4,621	672	425	January 1920—Approved
Flamboro West.....	25	82,734.00	400	207.00	2,423	356	131	January 1920—Deferred
Beverly.....	12.29	241,464.00	1,640	147.00	3,139	506	423	January 1920—Approved
North Dumfries.....	6.89	157,817.00	950	166.00	1,892	145	80	January 1920—Approved
Waterloo.....	15.96	557,973.00	4,100	136.00	6,475	596	385	January 1920—Approved
Woolwich.....	5.89	283,687.00	1,671	170.00	3,516	311	284	January 1920—Approved
Puslinch.....	3.39	38,543.00	498	77.00	2,306		27	Not submitted
Guelph.....	5.95	92,549.00	1,074	86.00	2,403			Not submitted
VILLAGE OF Elmira.....	.50	91,484.00	2,392	38.00	2,392	273	271	January 1920—Approved
TOWNS—								
Dundas.....	.80	168,942.00	1,252	135.00	5,009	401	319	January 1920—Approved
Waterloo.....	2.62	379,487.00	5,476	69.00	5,476	492	439	January 1920—Approved
Preston.....	1.80	281,615.00	5,184	54.00	5,184	470	317	January 1920—Approved
Hespeler.....	1.52	146,761.00	3,000	49.00	3,000			Not Submitted
CITIES—								
Hamilton.....	.69	607,173.00	107,832	5.60	107,832			January 1920—Approved
Galt.....	4.15	1,318,031.00	12,434	106.00	12,434	1,102	1,029	January 1920—Approved
Kitchener.....	4.87	1,953,080.00	23,000	46.00	23,000	1,581	1,174	January 1920—Approved
Guelph.....	6.36	855,239.00	18,000	47.00	18,000	1,347	1,099	January 1920—Approved
	81.65	\$6,530,659.00						

### NOTES

1. With regard to mileage in Townships, Towns, Village of Elmira and Cities it was explained by the Hydro Electric Power Commission that neither the mileage nor the cost within townships, etc., was used as a basis to apportion cost, excepting in certain instances, such as the City of Hamilton; but that each township, etc., was treated as a partner in the whole project; and that the cost was apportioned on what is referred to by the Hydro Electric Power Commission as an "Equalized Assessment" plan.
2. Exhibit No. 65, in which original population figures are set forth, shows total population by townships, etc., but does not give details of the population served; we have, therefore, used the figures set forth in Exhibit No. 56, both as to total population and population served. These were prepared, we understand, for the Radial Railway Commission and, as far as we can ascertain, are not materially different from the population figures shown in Exhibit No. 65 as to total.
3. It will be noted that "population served" figures have not been prepared in the case of each of the cities, and that total population figures have been used as a basis in calculating Per Capita Costs.



## APPENDIX 6

(SIGNED) "R.F.S."

" "A.F.M."

" "W.A.A."

" "C.H.M."

## PUBLIC DEBT OF CANADA FROM 1914 TO 1920.

As appears on page 42 Canadian Almanac, 1921.

Year.	Total Debt.	Total Assets-	Net Debt
1914 .....	\$ 544,391,368 86	\$ 208,394,518 72	\$ 335,996,850 14
1915 .....	700,473,814 37	251,097,731 16	449,376,083 21
1916 .....	936,987,802 42	321,831,631 40	615,156,171 02
1917 .....	1,382,003,267 69	502,816,969 89	879,186,297 80
1918 .....	1,863,335,898 89	671,451,836 39	1,191,884,062 50
1919 .....	2,676,635,724 77	1,102,104,692 33	1,574,531,032 44
1920 .....	3,043,790,658 60	794,922,034 81	2,248,868,623 79

NOTE:—The figures given in 1920 for Total Assets include only Active Assets. Non-active Assets to the amount of \$284,015,005.17 have been deducted. This amount, while not shown in this statement, is still carried in the books of the Finance Department as an asset.

STATEMENT OF INDEBTEDNESS  
PROVINCE OF ONTARIO

Year	Direct	Indirect
1914 .....	\$ 40,405,535 96	\$ 9,647,340 61
1915 .....	49,389,366 71	10,345,849 28
1916 .....	58,873,101 33	10,632,820 48
1917 .....	61,795,108 42	19,064,317 87
1918 .....	75,645,917 26	19,120,269 82
1919 .....	97,572,781 47	19,205,142 45
1920 .....	128,191,754 16	31,560,299 57

(Exhibit 235)

## LIABILITIES OF THE PROVINCE OF ONTARIO. JUNE 15th, 1921

Direct Liabilities of the Province of Ontario, October 31, 1920 ..... \$128,191,754 16  
PAID OFF SINCE:

Treasury Bills, "GG" .....	\$1,000,000 00	
Treasury Bills, "HH" .....	3,000,000 00	
Treasury Bills, "JJ" .....	5,000,000 00	
Treasury Bills, "KK" .....	6,000,000 00	
Inscribed Stock retired in London £36,250 .....	176,416 00	15,176,416 00
		<u>\$113,015,338 16</u>

## ISSUES SINCE:

Treasury Bills, "MM" .....	\$ 1,000,000 00	
Treasury Bills, "NN" .....	10,000,000 00	
Loan "PP" .....	5,000,000 00	
Loan "RR" .....	16,000,000 00	
Loan "SS" .....	10,000,000 00	
Loan "TT" .....	15,000,000 00	57,000,000 00
		<u>\$170,015,338 16</u>

## SINKING FUNDS

To credit of Loans 1, 2 and 3 .....	\$ 1,387,300 58
Hydro Electric Sinking Funds, .....	835,622 63
General Sinking Fund Account, applicable to all loans .....	710,000 00



CHANGES IN NET DEBT, 1914-1920  
CITY OF TORONTO

Year	Gross Debt	Sinking Fund	Net Debt	Increase	Decrease
1914 .....	\$ 75,249,388	\$14,685,003	\$60,564,385	\$12,252,404	.....
1915 .....	86,146,524	17,662,310	68,484,214	7,919,829	.....
1916 .....	97,730,921	23,062,347	74,668,574	6,184,360	.....
1917 .....	100,323,433	24,427,757	75,895,676	1,227,102	.....
1918 .....	104,116,152	26,279,341	77,836,811	1,941,135	.....
1919 .....	101,819,753	27,465,891	74,353,862	.....	3,482,949
1920 .....	103,819,125	28,366,244	75,452,881	1,099,019	.....

See annual report of Commissioner of Finance, December 31, 1919.

The figures for 1920 were obtained at the City Hall.  
(Exhibit 233)

HYDRO ELECTRIC POWER COMMISSION OF ONTARIO  
STATEMENT OF EXPENDITURE, JUNE 16th, 1921.

	Appropriation	Expended
Queenston Development .....	\$26,700,000	\$17,150,000
Niagara System .....	5,515,000	1,475,000
Severn System .....	80,000	25,000
Eugenia System .....	200,000	75,000
Muskoka System .....	10,000	5,000
Wasdell System .....	75,000	25,000
St. Lawrence System .....	410,000	255,000
Rideau System .....	30,000	.....
Thunder Bay System .....	1,996,700	1,450,000
Central Ontario System .....	1,318,000	750,000
Nipissing System .....	43,000	20,000
Miscellaneous .....	255,000	200,000
Essex County System .....	25,000	.....
Expenditure on account of Province .....	280,000	70,000
<b>TOTAL .....</b>	<b>\$36,937,700</b>	<b>\$21,500,000</b>

(Exhibit 234)

ADVANCES TO HYDRO TO JUNE 15th, 1921

Advances to October 31st, 1920

See Public Accounts, Statement No. 25 .....	\$66,312,501 10
Advanced in fiscal year 1921, to June 15th .....	21,500,000 00
	<b>\$87,812,501 10</b>

Advances in Bonds in above Total:

Series "R" .....	225,000	8,575,000 00
Series "M" .....	\$8,350,000	

APPENDIX 7

(Signed) "R.F.S."  
 " " "A.F.M."  
 " " "W.A.A."  
 " " "C.H.M."



## THE SUPREME COURT OF ONTARIO

Osgoode Hall,

Toronto, July 7th, 1921.

Honorable W. E. Raney, K. C.,  
Attorney General for Ontario,

Legislative Assembly Buildings, Toronto.

Dear Mr. Raney:

## Re Radial Railway Commission.

On the 28th ultimo during Mr. R. S. Robertson's argument before the Commission our attention was directed to the following statement in the letter of Sir Adam Beck to the Honorable E. C. Drury, Prime Minister, dated June 11th, 1920, namely:

"2. Toronto-Port Credit-St. Catharines Railway. Reports and estimates were submitted in the year 1915 to the Municipalities between Toronto and Port Credit re the construction and operation of this section as a part of the Toronto to London line; by-laws were submitted in January of 1916 and for section between Port Credit and St. Catharines in 1917 and 1919 and were passed by large majorities. Fifteen Municipalities have executed agreements with the Commission authorizing the procedure with this work and assuming the responsibility for the railway and its operation between Port Credit and St. Catharines and have deposited with the Commission debentures for the full amount; the Commission has issued bonds to the extent of \$11,360,363.00, all of which have been *guaranteed* by the Province."

Mr. C. C. Robinson, Counsel for the Hydro Electric Power Commission for Ontario, at page 12642 of the Record made this statement:—

"Mr. Robinson—But the bonds were guaranteed by the Government? The Hydro Electric Bonds were issued under the Act and in accordance with the Act and the Government guaranteed them in March, 1920.

"The Chairman: Then what bonds of the Hydro up to then had been issued with respect to this prospective line of railway?

"Mr. Robinson—\$11,660,000 odd guaranteed by the Province under the Hydro Electric Railway Act."

There is some further reference and discussion.

Are we to understand from this that the Province has endorsed the bonds of the Hydro Electric Power Commission of Ontario in connection with a portion of the system of the Hydro Radial Railways we have under investigation to the extent mentioned, namely \$11,360,363, and that these bonds to the total of that sum are available for expenditure in relation thereto, or have been in part resorted thereto for expenditures already made.

May we ask you to furnish us with a statement of how much moneys the Province has actually advanced to date to the Hydro Electric Power Commission of Ontario on account of the Hydro Radials system of railways under investigation, giving details as to when advanced and with respect to what part or parts of the system and the extent to which if any, the bonds mentioned as said to have been thus endorsed by the Province, have been pledged (or sold) to raise money thereon? Perhaps you might add where and by whom the bonds are now held.

Yours sincerely,

(Signed) R. F. Sutherland,

Chairman

The Hydro Electric Power Commission of Ontario,  
University Avenue,  
Toronto.

Dear Sirs:

## Re Radial Railways Commission

Pursuant to instructions of the Commission I am to-day sending the original of the enclosed letter to the Attorney General. We thought at the same time a copy should be sent to you.

Yours sincerely,

(Signed) R. F. SUTHERLAND,

Chairman.

Toronto, July 13th, 1921.

Dear Mr. Sutherland:

Toronto, Port Credit, Hamilton, St Catharines Railway.

Answering your letter of the 7th inst. I find that the facts referred to in the statement in Sir Adam Beck's letter to the Premier of the 11th June, 1920, and in the proceedings at page 12642 of the Record of the Hydro Radial Railway Commission Inquiry are as follows:—

On the 8th August, 1919, that is to say, before the present Government came into office, an Order-in-Council was passed authorizing the Hydro Electric Commission to proceed with the construction and equipment of an electric railway between Port Credit, Hamilton, and St. Catharines, and to issue bonds for the amount required for such undertaking.

On February 23rd, 1920, the secretary of the Commission wrote the Treasurer that the debentures required had been prepared and asked that they be endorsed as authorized by the Order in Council of August 8th, 1919. The secretary wrote:—

"The purchase of right of way has been going on for some time and the Commission would be obliged if the matter of endorsing the bonds would receive early attention so that the necessary funds may be secured through the depositing of bonds to take care of the disbursements for right of way purchase and preparation for the construction of the lines."

The total amount of the bonds to be issued was \$11,360,363.

It was represented to the Government that certain commitments had been made by the Commission and certain advances secured from the Bank and that it was necessary that the guarantee of these bonds should be duly executed in order that the Commission should be in a position to meet the obligations it had incurred.

The Government consented to the guarantee for the purpose of protecting the Commission against commitments already made; and it was not intended that any more bonds would be issued than were necessary for that purpose.

On various dates from the 10th March, 1920 until the 20th May, 1920, the Assistant Treasurer, Mr. Sproule, as authorized by the Order in Council, endorsed the guarantee of the province to the issue of the bonds and delivered them to the Hydro Electric Commission.

On July 6th, 1920, the Premier forwarded to the Chairman of the Hydro Electric Power Commission a copy of the statement of the attitude of the Government in connection with the various proposed radial railway schemes, including the announcement of the appointment of a Commission of Enquiry. That statement concluded with the following paragraph:—

"The Commission will be requested to proceed immediately with its task, to hold public enquiries, and to report without unnecessary delay. In the meantime all action in the direction of further outlays or the assumption of further responsibilities in radial matters by the Hydro Electric Commission will be stayed."

The Premier's covering letter also contained the following statement:

"Meantime we would request that pending the results of such enquiry further expenditure on these roads be not gone on with."

On the 23rd July, 1920, the Attorney General wrote to the secretary of the Hydro Electric Power Commission inquiring whether the Hydro Electric Power Commission had discontinued purchases for the right of way of the projected Toronto-Port Credit-Hamilton and St. Catharines Radial Line, and on the 29th July the secretary answered that the Commission had not acquired any right of way on the Toronto-Port Credit Line since July 1st, and that the total commitments on that section then amounted to \$625,000.00, and that the total commitments on the Port Credit-Hamilton-St. Catharines section to the date of the letter amounted to \$172,851.00. He added:—  
"The Right of Way Department is continuing to purchase right of way on this section."

On the same date the Attorney General wrote to the Premier enclosing a copy of his letter to Mr. Pope and a copy of Mr. Pope's reply. Thereafter the Premier communicated verbally with the Commission calling their attention again to the terms of his communication of the 6th July and requesting that there should be no further purchases of right of way, and the Commission then discontinued further expenditures.

The absence of Mr. Clarkson from Toronto has delayed me in getting for you the further information requested in the last paragraph of your letter. I am told that he will be in Toronto today and I hope now to get a report from him covering these points without delay.



In the meantime I may just say that my understanding is that \$1,200,000.00 of the issue of \$11,360,000.00 of bonds referred to by Sir Adam Beck are deposited with the Bank of Montreal as collateral to the advance made by the Bank for purchases of right of way, and that the remainder of the issue are in the vaults of the Hydro Electric Power Commission unsigned and unsealed. These bonds of course are not available for expenditure unless the Government decides to proceed with the work.

Enclosed please find the following papers above referred to:—

1. Copy of Order in Council of 8th August, 1919, above referred to.
2. Copy of Mr. Drury's letter to Sir Adam Beck, dated 6th July, 1920.
3. Copy of Sir Adam Beck's letter acknowledging receipt dated 7th July, 1920.
4. Copy of Attorney General's letter to Mr. Pope dated 23rd July, 1920.
5. Copy of Mr. Pope's answer to Attorney General dated 29th July, 1920.
6. Copy of Attorney General's letter to the Premier, dated 29th July, 1920.

Yours sincerely,

(Signed) W. E. Raney.

The Honourable,

R. F. Sutherland,  
Osgoode Hall,  
Toronto.

Enclos.

Sir Adam Beck,  
Chairman, Hydro-Electric Commission,

Copy of an Order-in-Council approved by His Honour, the Lieutenant Governor, the 8th day of August, A. D., 1919.

Upon the recommendation of the Honourable the Attorney General and in accordance with the request of the Hydro-Electric Power Commission of Ontario the Committee of Council advise that pursuant to the Hydro-Electric Railway Act, 1914, and amendments thereto, the Hydro-Electric Power Commission of Ontario be authorized to proceed with the construction and equipment of an electric railway between Port Credit, Hamilton and St. Catharines as described in the Hydro-Electric Railway Act, 1919, and to issue bonds from time to time for the amount required for such undertaking.

The Committee further advise that the Treasurer of Ontario be authorized for and on behalf of the Province to guarantee the payment of the bonds so issued by the Commission.

And the Committee further advise that Charles Hood Sproule, Assistant Treasurer of Ontario, be designated as the Officer to sign the said guarantee on each of the above mentioned bonds on behalf of the Province of Ontario, and that the form of such guarantee shall be as follows:—

“By virtue of powers conferred by the Legislature of the Province of Ontario, Canada, the Province of Ontario hereby guarantees to the holder of the within bond for the time being and to the holder for the time being of any of the coupons attached thereto, due payment of the principal of the within debenture and of the interest thereon according to the tenor of the said debenture and of the coupons attached thereto.”

Certified,

(Signed) J. Lonsdale Capreol,  
Clerk, Executive Council.

Honourable E. C. Drury,  
Prime Minister of Ontario,  
Parliament Buildings,  
Toronto.

Toronto, July, 6th, 1920..

My dear Sir Adam,—

In reply to the communications from the Hydro-Electric Commission of June 30th, regarding the Toronto Suburban Railway, and acquiring of the Niagara-St. Catharines and

Toronto Railway, I beg to say that the Government has given this matter its very full and careful consideration, and have decided, for the reasons set forth in the accompanying memorandum, to defer action in regard to the acquisition of these roads until such time as we have satisfied ourselves by means of a thorough enquiry as to the advisability of going on with this project. Meanwhile we would request that pending the results of such enquiry further expenditure on these roads be not gone on with.

This action is taken, I beg to assure you, not because of any feeling of lack of confidence in either Hydro-Electric projects in general or in the Hydro-Electric Commission, but because the Government, being responsible to the people of Ontario, feels that it should employ every means to fully inform itself of the feasibility and advisability of these great projects.

The enquiry will be pushed with all possible speed so as to avoid every unnecessary delay should the Government finally decide to proceed with the project.

Yours very sincerely,

(Signed) E. C. Drury.

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#### HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO.

Office of the Chairman

190 University Ave.,

Toronto, July 7th, 1920.

Dear Mr. Drury:—

I beg to acknowledge receipt of yours of the 6th instant, together with enclosed memorandum, with respect to the communications from the Commission of June 30th.

Yours very truly,

(Signed) A. BECK,  
Chairman.

---

Toronto, 23rd July, 1920.

My dear Sir:—

Might I enquire for the information of the Government whether the Hydro Electric Power Commission has discontinued purchases for the right of way of the projected Toronto-Port Credit-Hamilton and St. Catharines radial line, and if so when the discontinuance took effect; also what the total amount of the commitments under this head are to this date, approximately.

Yours sincerely,

(Signed) W. E. Raney.

W. W. Pope, Esq.,  
Secretary,

Hydro-Electric Power Commission,  
Toronto.

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#### HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO

Office of the Secretary

190 University Ave.,

Toronto, July 29th, 1920.

Honourable W. E. Raney, K. C.,  
Attorney General,  
Parliament Buildings,  
Toronto.

My dear Sir:—

Replying to your letter of enquiry of the 23rd instant, which came to hand on the 26th, I beg to say that the Commission has not acquired any right-of-way on the Toronto-Port Credit Line since July 1st. The total commitments on the Toronto-Port Credit Section amount to \$625,000.00.

The total commitments on the Port Credit-Hamilton-St Catharines Section to this date



amount to \$172,851.00. The Right-of-Way Department is continuing to purchase right-of-way on this section.

Yours truly

(Signed) W. W. Pope,  
Secretary.

Toronto, 29th July, 1920.

Dear Mr. Drury,

Noticing a statement by Sir Adam Beck in his Oakville speech last week to the effect that the Hydro Commission was purchasing right of way in the Niagara Peninsula for the Toronto-Port Credit-Hamilton & St. Catharines line I wrote a letter of enquiry to Mr. Pope, the Secretary of the Commission, and I now enclose a copy of my letter along with a copy of Mr. Pope's reply.

You will note that Mr. Pope states that the Commission is continuing to purchase right of way on the Port Credit-Hamilton & St. Catharines section. In this connection I have to call your attention to the fact that the Toronto-Port Credit-Hamilton and St. Catharines line constitutes the first item of the proposals that have been referred to the Commission for consideration. (See page 4 of the Government's printed statement, a copy of which is attached to the Commission).

I have also to call your attention to the fact that the Government's statement forwarded to the Hydro Electric Power Commission on the 6th July concludes with the following sentence:—

"In the meantime all action in the direction of further outlays or the assumption of further responsibilities in radial matters by the Hydro Electric Commission will be stayed."

Yours sincerely,

(Signed) W. E. Raney.

Hon. E. C. Drury,  
Premier

Toronto, July 13th, 1921.

Dear Mr. Sutherland:

#### RE HYDRO RADIAL RAILWAYS

I now have from Mr. Clarkson a statement covering I think fully the information not conveyed by my former letter of today asked for by your letter of the 7th inst.

I have Mr. Clarkson's permission to say that if there is any explanation you require with regard to any of the matters covered by his letter he would be quite willing to furnish it by way of supplementary letter or by calling to see you.

Yours sincerely,

(Signed) W. E. Raney.

The Honourable,  
R. F. Sutherland,  
Osgoode Hall  
Toronto

Enclos.

Toronto, July 13, 1921

W. E. Raney, Esq.,  
Attorney General Province of Ontario,  
Toronto, Ont.

Dear Mr. Raney:

#### RE HYDRO RADIAL RAILWAYS

In reply to your enquiry as to the amounts invested by the Hydro Electric Commission of Ontario in Hydro Radial Railways and the proportion thereof which have either been advanced in money or guaranteed by the Province I would state to October 31st, 1920, to the end of the last fiscal year of the Commission, the following amounts stood capitalized upon the books of the Commission in respect of the investments in Hydro Radial Railways:

(1) In the Sandwich, Windsor and Amherstburg Railway .....	\$2,255,500 95
(2) In the Port Credit to St. Catharines Radial Railway .....	413,620 85
(3) In the Toronto to Port Credit Railway .....	683,286 74
(4) In the Toronto and Eastern Railway .....	43,946 40
(5) In the St. Catharines & Niagara Falls Railway .....	25,984 29
(6) In the Hamilton, Galt, Elmira & Guelph Railway .....	36,482 06
(7) In the Hamilton, Brantford, Woodstock and London Railway .....	17,674 34

While in addition the Commission had also expended in respect of valuation of—

(8) Niagara and St. Catharines and Toronto Railway .....	1,005 27
(9) Toronto and Suburban Railway .....	5,604 86

Dealing with them in order—

#### *Re Sandwich, Windsor & Amherstburg Railway*

The investment of the Commission in the above undertaking amounted on October 31st, 1920, to \$2,255,500.96 of which \$2,039,000 was represented by forty year 4½% bonds of the Commission to April 1, 1920, guaranteed by the Province of Ontario, while the balance was made up of advances to the extent of \$216,500.96, made by the Commission to the undertaking. Of these advances \$200,000 were borrowed by the Commission from the Bank of Montreal against the security of \$61,000 forty-year 4½% bonds of the Commission guaranteed by the Province and due on April 1, 1960, and \$190,000 of bonds of the City of Windsor given in purchase of electrical works owned by the Railway Company and sold to the city by the Commission after the date of purchase.

From the above it will be seen that the total of the bonds outstanding and guaranteed by the Province is \$2,100,000—\$2,039,000 of which represented the purchase price of the undertaking and \$61,000 held and later pledged for purposes of rehabilitation.

As against the guarantee of the Province given in respect of \$2,100,000 of bonds above mentioned, eight municipalities have lodged their debentures with the Commission to the amount of \$2,100,000 as security for payment of any operating deficits on the capital cost of the undertaking. No cash advances have been made by the Province to the undertaking.

Since October 31st, 1920 the Commission on behalf of the undertaking has made application to the Government of the Province for the guarantee of upwards of \$900,000 more of bonds for purposes of rehabilitation, extension and acquisition of equipment.

#### *Re Port Credit to St. Catharines Railway.*

The total amount invested by the Commission in the Port Credit to St. Catharines Railway to October 31st, 1920, was \$413,620.85, of which \$406,509.66 was expended in the fiscal year ending October 31st, 1920. In respect of this Radial Railway, the Province of Ontario has guaranteed bonds of the Commission under the Hydro Radial Railways Act to the amount of \$11,360,363, of which said bonds \$1,200,000 stood deposited on October 31st, 1920, with the Bank of Montreal as security for the payment of advances then outstanding of \$100,000. The remainder of the bonds, \$10,160,363, stood on October 31st, 1920, guaranteed by the Province but unsigned by the Secretary of the Commission and unsealed by the Commission—on October 31st, 1920, they were in the possession of the Commission.

Since October 31st, 1920, and on or about the 28th of December, 1920, a further loan of \$400,000 was obtained by the Commission from the Bank of Montreal on the security of \$1,200,000 of bonds mentioned which thereafter stood pledged for a total amount of \$500,000.

With the investment of the Commission in the undertaking amounting to \$413,620.85 on October 31st, 1920, and \$100,000 only obtained at that time by borrowing (against \$1,200,000 of bonds mentioned), the remaining \$313,620.85 was expended out of moneys belonging to the power undertaking. The use of power funds for such purposes being unauthorized, the further loan of \$400,000 was obtained on Dec. 28, 1920, to refund the same.

At the present time the obligation of the Province in respect of Toronto, St. Catharines Railway consist of the guarantee on its part of \$11,360,363 of Hydro Radial bonds, of which \$10,160,363 are held by the Commission, not fully executed, and the remaining \$1,200,000 are pledged to the Bank of Montreal for advances of \$500,000. No cash advances have been made by the Province for the purposes of the Railway.



*Re Toronto to Port Credit Radial Railway*

To October, 31st, 1920, the expenditures of the Commission in connection with the Toronto to Port Credit Radial Railway amounted to \$683,286.74, which expenditures were made upon the authority of a letter of Sir William Hearst, late Premier of the Province of Ontario, that if the Commission would obtain resolutions by the municipalities interested requesting the Government to introduce and pass all amendments to existing legislation that might be necessary to validate the building of an electric railway between Toronto and Port Credit, as part of the proposed Toronto to St. Catharines Hydro Electric Railway, so as to make the same legal, valid and binding upon the municipalities, that the Government would with the presentation to it of such resolutions support legislation to that effect. On the basis of these assurances and with resolutions of the municipalities in its possession, the Commission acquired certain rights of way and made other expenditures in connection with the railway out of funds held by it under the terms of the Power Commission Act. The expenditures so made to October 31st, 1920, amounted as before stated to \$683,286.74. On October 31st, 1920, bonds of 6 municipalities to the amount of \$5,109,573 stood deposited with the Commission under the terms of the Hydro Radial Act, but no bonds had been issued by the Commission neither had the Province entered into any guarantees in respect of the line. The \$683,286.74 expended by the Commission upon the line can, however, fairly be said to be part of the funds advanced by the Province to the Commission under appropriations made for the purposes of the different power systems and undertakings operated and controlled by the Commission.

Re Toronto and Eastern Railway: \$43,946.40.

St. Catharines & Niagara Falls Railway: \$25,984.29.

Hamilton, Galt, Elmira & Guelph Railway, \$36,482.06.

Hamilton, Brantford, Woodstock & London Railway: \$17,617.34. Total, \$124,087.09.

The above amounts expended by the Commission in respect of such Railways were made out of funds held by it for the benefit of power undertakings and without any apparent legal authority. No bonds have been issued by the Commission in respect of such railways or guarantees given by the Province.

On the Toronto and Eastern line the municipalities interested have passed by-laws and certain, but not all, of the agreements with the Commission have been executed.

On the St. Catharines and Niagara Falls line by-laws have not been submitted to or voted upon by the interested municipalities.

On the Hamilton, Galt, Elmira and Guelph line by-laws were carried by certain, but not all of the municipalities interested, and no agreements have been executed between any of the municipalities and the Commission.

On the Hamilton, Brantford, Woodstock and London line by-laws have not been submitted to or voted upon by the municipalities interested.

Moneys expended by the Commission in respect of valuations have been as follows:

Niagara, St. Catharines & Toronto Railway .....	\$1,005 27
Toronto Suburban Railway .....	5,604 86

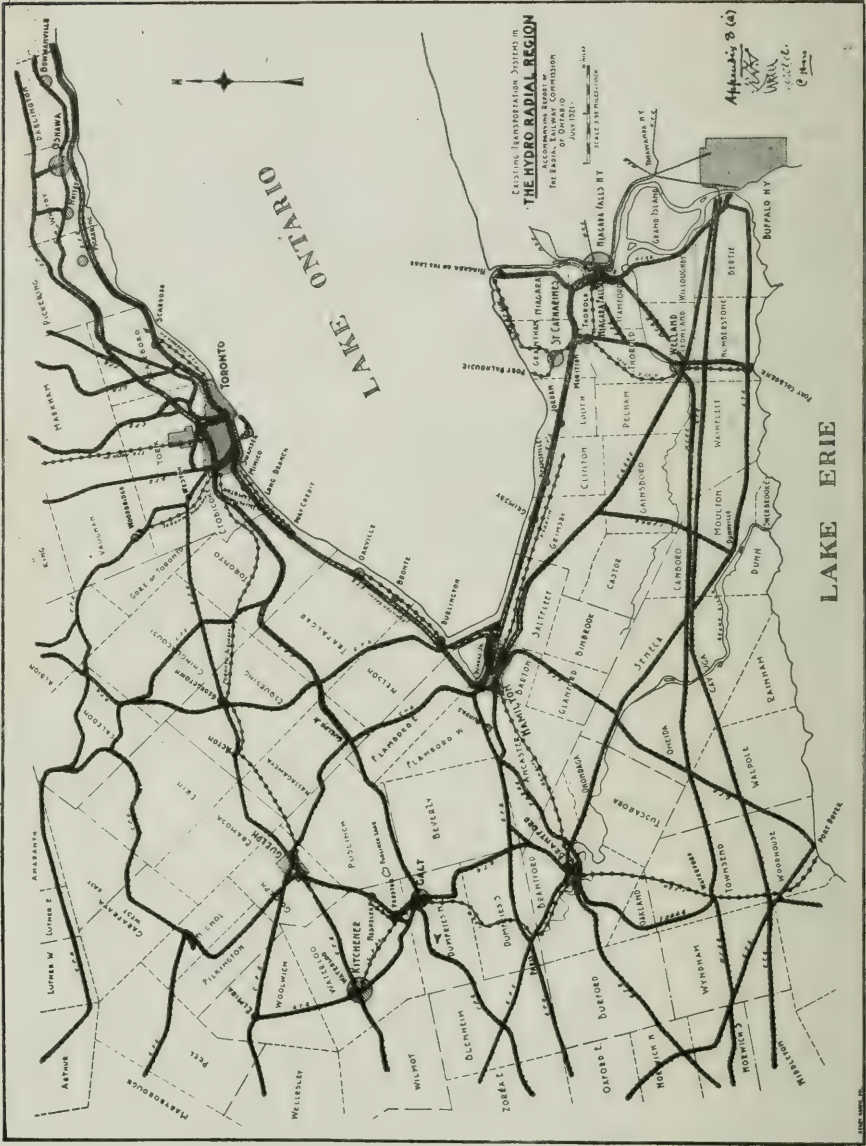
Total .....	<u>\$ 6,610 13</u>
-------------	--------------------

These expenditures were made out of the general funds of the Commission and there would not appear to be any statutory authority permitting disbursement of the same. No bonds have been issued by the Commission in the connection, neither is the Province under any liability in respect of the undertakings.

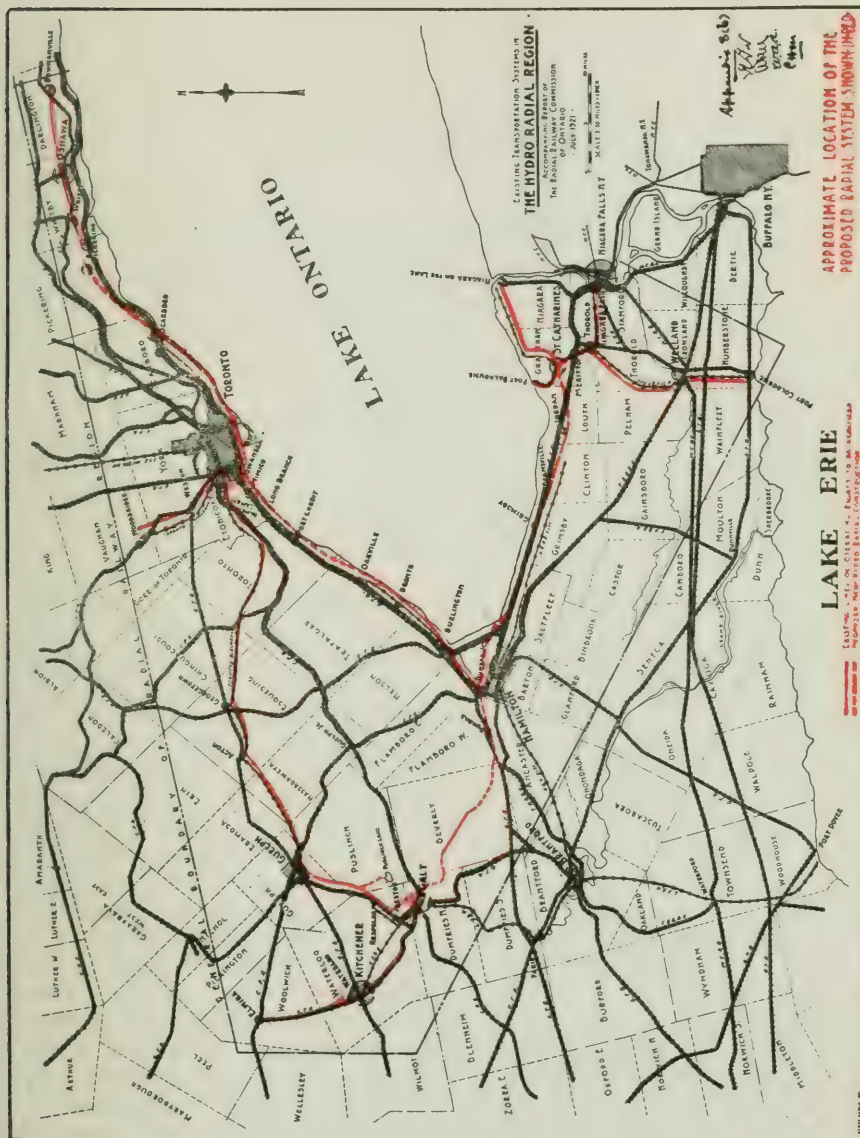
In addition to the amounts mentioned sums expended by the Commission in respect of the Hydro Radial investigation amounted to October 31st, 1920, to \$44,704.09, which sums the Commission contends are repayable by the Province to it.

Yours truly,

(Signed) G. T. Clarkson.







## APPENDIX 9

(Signed) "R.F.S."  
 " "A.F.M."  
 " "W.A.A."  
 " "C.H.M."

## REPORT OF THE FEDERAL ELECTRIC RAILWAYS COMMISSION.

The President of the United States.

Sir: The Federal Electric Railways Commission begs leave to present the following report.

This Commission was appointed by you in response to a suggestion outlining the need of such a commission in the following letter from two members of your Cabinet, the Secretary of Commerce and the Secretary of Labor:

Washington, D. C., May 15, 1919.

Dear Mr. President: The electric-railway problem to which your attention has been called on several occasions has recently assumed such serious national proportions as to warrant the prompt attention of the Federal Government. Already 50 or more urban systems, representing a considerable percentage of the total electric-railway mileage of the country, are in the hands of receivers. The communities affected are among the most important—New York, Providence, Buffalo, New Orleans, Denver, St. Louis, Birmingham, Montgomery, Pittsburgh, Memphis, Fort Wayne, Des Moines, St. Paul, Spokane, Chattanooga.

Other large systems are on the verge of insolvency, for the industry as a whole is virtually bankrupt. The continued shrinkage in the value of hundreds of millions of electric-railway securities held by savings banks, national banks, life-insurance companies, and by the public at large threatens to embarrass the Nation's financial operations. Furthermore, the withdrawal of this industry's buying power, which is said to rank third in magnitude, involves the unsettlement of collateral industries, naturally entailing labor dislocation that will affect hundreds of thousands of employees.

The return to normal conditions is being hampered and the efforts of the Government to avert strained conditions in finance, labor, and commerce are being less fruitful of satisfactory results than should be expected, if some solution of the electric-railway problem were in view.

What the solution is may, we believe, be evolved by a thorough investigation of general franchise and operating conditions in their relation to rates, including service-at-cost plans, State and municipal taxation, local paving requirements, and internal economies that may be effected.

We therefore propose and recommend the appointment by you of a Federal board or commission, whose duty it shall be to study and report upon the entire problem in order that the State and municipal authorities and others concerned may have the benefit of full information and of any conclusions or recommendations that may be formulated. Such a study will, in our opinion, exert a helpful and constructive force in this critical period of the industry's existence and will aid in the readjustment. If you would make such an appointment before June 30 your contingency fund could be used to defray the expenses, which would be about \$10,000.

The National Association of State Commissioners has always invited Federal aid in this matter and the recent conference of governors and mayors adopted a resolution recommending Federal consideration of the problem of preventing the financial disaster threatening this industry.

We propose that such a commission shall be made up of one representative of each of the following groups: Treasury Department or War Finance Corporation, Department of Commerce, Department of Labor, National Association of State Commissioners, American Cities League of Mayors, Amalgamated Association of Street and Electric Railway Employees, American Electric Railway Association, Investment Bankers' Association of America.

We respectfully urge your authorization for such a commission, to be followed by your formal proclamation upon the selection of the personnel.

Cordially, yours,

William C. Redfield,  
 Secretary of Commerce.

W. B. Wilson,  
 Secretary of Labor



The Commission appointed by you on the 31st day of May, 1919, consisted of the following members, who were to serve and have served thereon without compensation:

Charles E. Elmquist, president and general solicitor of the National Association of Railway and Utilities Commissioners.

Edwin F. Sweet, Assistant Secretary of Commerce, representing the Department of Commerce.

Philip N. Gadsden, representing the American Electric Railway Association.

Royal Meeker, Commissioner of Labor Statistics, Department of Labor, representing that department.

Louis B. Wehle, General Counsel of the War Finance Corporation, representing the Treasury Department.

Charles W. Beall, of Harris, Forbes & Co., New York, bankers, representing the Investment Bankers Association of America.

William D. Mahon, president of Amalgamated Association of Street and Electric Railway Employees of America, representing that association.

George L. Baker, mayor of Portland, Oreg., representing the American Cities League of Mayors.

The Commission met on June 4, 1919, in Washington, D. C., and organized by electing Charles E. Elmquist as chairman and Edwin F. Sweet as vice chairman, and subsequently appointed Charlton Ogburn as its executive secretary. At its first meeting the Commission announced that it would attempt to determine the general principles which should govern the regulation, operation, and service of electric railways, but that the Commission was without authority to hear and determine specific local controversies, and that it would not undertake in any way to encroach upon the functions of State commissions or of municipal authorities; that the purpose of the Commission was rather to investigate and study the condition of the electric railway industry, including franchises, rates, taxation and assessments, economies of operation, public relations, regulation, etc.

The Commission gathered its testimony mainly in two ways: First, by public hearings, at which 95 witnesses testified in person and 21 others sent prepared statements; second, by a series of questionnaires sent to every city in which there is a street or interurban railway, addressed to the electric railways, the mayors, chambers of commerce, and the central labor unions, and also to all of the State public utility commissions.

The first public hearing was held in New York on June 19, 1919. The next hearing was held in Washington on July 15, lasting two weeks, during which time the witnesses on behalf of the electric railways presented evidence under the direction of the committee of one hundred of the American Electric Railway Association. The next hearing was in Washington beginning August 11, and lasted one week, testimony being offered on behalf of the public, chiefly by representatives of the municipalities and all State public utility commissions. At the last hearing, held in Washington, beginning September 29, and lasting one week, testimony was offered by further witnesses representing the public and by witnesses on behalf of labor, represented by the Amalgamated Association of Street and Electric Railway Employees of America. All of these hearings ran through day and night sessions, beginning at 10 a.m. and usually continuing until 10 or 11 p.m., and totaling one month.

Among the witnesses were ex-President William H. Taft, Secretary of War Newton D. Baker, leading bankers, railway managers, economists, mayors, public utility experts, and State public utility commissioners.

The testimony taken embraces 6,195 pages of typewritten transcript.

Three separate questionnaires were later sent out. The first was general, dealing with all phases of the situation. The last two were special, seeking traffic figures, month by month, for the past three years—that is, as to the number of revenue passengers, amount of passenger revenue, fare charges, and any occurrences affecting traffic, such as strikes, influenza epidemic, and the like.

At the conclusion of the final public hearing the Commission engaged the services of Dr. Delos F. Wilcox to aid in analyzing the testimony gathered and to make suggestions to the Commission with reference to its report. Dr. Wilcox made a very comprehensive analysis of the

evidence, containing 823 pages of matter. The Commission regrets that it can not publish this analysis with the proceedings, since it represents a complete and masterful study of the whole electric railway problem. Printed with the evidence, however, is a summary of the Wilcox report, prepared by him. The answers to the questionnaires resulted in bringing to the attention of the Commission a great mass of information. All the evidence, exhibits, analysis of Dr. Wilcox, and tabulated summaries of information found in the answers to the questionnaires have been considered by this Commission.

The final meeting of the Commission was held in Washington, July 22 to 27, 1920, inclusive, for the purpose of formulating this report.

Owing to the divergent representation of its personnel, this unanimous report of the Commission necessarily represents decided concessions by some of its individual members.

A complete report of the testimony will be printed, together with this report, and will be placed in the Congressional Library in Washington and other leading libraries in the country, with all regulatory commissions, and with the mayors of the leading cities of the United States.

For convenience, we wish, before proceeding to our discussion, to state our principal conclusions and recommendations, which are as follows:

### SECTION I.

#### CONCLUSIONS AND RECOMMENDATIONS

I. The electric railway furnishing transportation upon rails is an essential public utility and should have the sympathetic understanding and co-operation of the public if it is to continue to perform a useful public service.

II. The electric railway has been and will continue to be a public utility, subject to public control as to the extent and character of the service it renders and as to the rates it charges for such service.

III. It is of the highest importance that both the total cost of the service and the cost to the individuals who use it shall be kept as low as possible without injustice to those who take part in producing it.

IV. The electric railway industry as it now exists is without financial credit and is not properly performing its public function.

V. This condition is the result of early financial mismanagement and economic causes accentuated by existing high-price levels of labor and materials, and of the failure of the uniform unit fare of 5 cents prescribed either by statute or by local franchise ordinances or contracts to provide the necessary revenues to pay operating costs and to maintain the property upon a reasonable basis.

VI. The industry can be restored to a normal basis only by the introduction of economies in operation, improving the tracks, equipment, and service, and assuring a reasonable return upon the fair value of its property used in the public service when honestly and efficiently managed.

VII. The electric railways must expand to meet the growing needs of their communities; therefore, the first essential is to restore credit in order to obtain necessary new capital for the extension and improvement of service.

VIII. Restoration of credit involves a readjustment of relations which will remove public antagonism, provide public cooperation, and insure to the investor the integrity of his investment and a fair rate of return thereon.

IX. Effective public cooperation should be exercised by eliminating, in so far as it is practicable, special assessments for sprinkling, paving, and for the construction and maintenance of bridges which are used by the public for highway purposes.

X. Extensions into new territory resulting in special benefits to the property in that vicinity should be paid for by assessments on such property in proportion to the benefits received, and that the amount of such assessment should not be added to the physical value of the corporate property.

XI. The great increase in the use of private automobiles, the jitney and motor busses has introduced a serious although not a fatal, competition to the electric railway. These forms of



public motor conveyance when operated as public carriers should properly be subject to equivalent regulatory provisions.

XII. The full cooperation of labor is essential to the highest prosperity and the usefulness of the industry. The employees engaged in this occupation should have a living wage and humane hours of labor and working conditions. They should have the right to deal collectively with their employers, through committees or representatives of their own selection. All labor disputes should be settled voluntarily or by arbitration, and the award of such a board should be final and binding upon both parties. It is intolerable that the transportation service of a city should be subject to occasional paralysis, whether by strikes or by lockouts.

XIII. A private industry should not be subsidized by public funds unless it is imperatively necessary for the preservation of an essential service, and then only as an emergency measure.

XIV. Unless the usefulness of the electric railways is to be sacrificed public control must be flexible enough to enable them to secure sufficient revenues to pay the entire cost of the service rendered, including the necessary cost of both capital and labor.

XV. There can be no satisfactory solution of the electric-railway problem which does not include the fair valuation of the property employed in the public service, and where that is done the companies should voluntarily reduce any excessive capitalization to the basis of such value.

XVI. There is no insuperable objection to a large, wide-open city having exclusive jurisdiction over the rates and services of public utilities.

XVII. The necessity for scientific and successful regulation of systems, whether large or small, and especially those which operate through several cities and villages and in rural territory, leads to the conclusion that local regulation should generally be subject to the superior authority of the State, whether as a matter of original jurisdiction or through the medium of appeal.

XVIII. Cost-of-service contracts are in the experimental stage, but where tried they seem to have secured a fair return upon capital, established credit, and effected reasonably satisfactory public service. Such contracts may safely be entered into where the public right eventually to acquire the property is safeguarded.

XIX. The right of the public to own and operate public utilities should be recognized, and legal obstacles in the way of its exercise should be removed.

XX. While eventually it might become expedient for the public to own and operate electric railways, there is nothing in the experience thus far obtained in this country that will justify the assertion that it will result in better or cheaper service than privately operated utilities could afford if properly regulated.

XXI. Public ownership and operation of local transportation systems, whether or not it be considered ultimately desirable, is now because of constitutional and statutory prohibitions, financial and legal obstacles, the present degree of responsibility of our local governments, and the state of public opinion, practicable in so few instances, that private ownership and operation must as a general rule be continued for an extended period.

XXII. If the reforms incident to public regulation which we suggest in this report should not result in making private ownership satisfactory to the public, such reforms should at least enable public ownership to be established upon a just and equitable basis.

## SECTION II

### THE STREET RAILWAY IS AN ESSENTIAL INDUSTRY

The electric railway industry at present is a factor of essential importance in the urban life and, to a scarcely less extent, in interurban relations of the country.

The experience of 75 years, the unanimous opinion of expert witnesses, and of those who are students of transportation problems, and the assumption of the necessity for tracks by inventors working to improve the methods of street transportation alike demonstrate the fundamental and permanently essential nature of the railway—and to the present time of the electric railway—as the most nearly adequate, reliable, and satisfactory system available for transporting

the maximum number of people through the streets of our cities with the least interference with the use of these streets for other purposes of public ways.

The Bureau of Census Reports for the year 1917 show the net capitalization as of December 31, 1917, to be \$4,869,962,096, which makes this industry one-fourth as important as the steam railroads of the country in point of capitalization. The total mileage in 1917 was 44,835. The net capitalization per mile of track is \$109,065. The total revenue for 1917 from railway operations was approximately \$650,000,000. These statistics do not include the electrified portions of steam railroads engaged in suburban service. Approximately 40 per cent. of the mileage is suburban in character.

The number of people with whom the electric railways come into daily contact is shown by the fact that in the year 1917 they carried a total of 11,304,660,462 revenue passengers and 3,202,254,111 transfer and free passengers, as compared with a total of 1,066,638,474 revenue passengers carried by the steam roads.

In spite of the immense development of the automobile industry the demand for electric railway transportation has increased at a rapid rate. It is estimated that on December 31, 1917, there were 4,643,481 passenger automobiles and that two-thirds of the development of that industry was subsequent to 1912, but the number of revenue passengers carried by the electric railways was approximately 1,800,000,000 more in 1917 than in 1912. During the year ended June 30, 1919, the total number of revenue passengers carried by the local transportation lines of New York City was 2,079,942,604, as compared with 1,402,417,642 carried during the year ended June 30, 1909, an increase of more than 46 per cent. in 10 years. On the basis of the estimated population served the number of revenue rides per capita in New York City in 1909 was 304 and in 1919, 370—an increase of nearly 22 per cent. in the riding habit.

In this connection Mr. Henry G. Bradlee, president of the Stone & Webster Corporation, stated in a letter dated October 1, 1919, as follows:

"It would appear that something has been and is still stimulating the street railway business; possibly the automobiles themselves have helped in this direction. People may be acquiring to a greater extent than ever before the riding habit, and may be more and more inclined to move about and spend less time in their own home or with their own neighbors. The moving picture is probably also a factor in the situation, but whatever may be the cause, the facts seem pretty clear that the demand for transportation service is still growing apace. This fact, I think, is generally not understood; in fact, I am free to confess that we ourselves were surprised to see the extent of the increased demand for service."

In 1917 the number of employees was 294,826, and it is estimated that the total number of people who were directly and conveniently accessible to electric railway service is about 80,000,000 at the present time. The electric railways have overflowed municipal boundaries and now include a network of interurban lines in many portions of the country, but the fact still remains that the industry is primarily a street railway with its principal function the transportation of passengers within the limits of municipalities.

While the electric railway industry is essentially local, it has certain national characteristics. Its difficulties can not be regarded simply as the isolated problem of a local system repeated hundreds of times all over the country in varied forms and degrees, each problem being independent of all the others. On the contrary, although a local traction system may be separated by hundreds of miles from its nearest neighbor, it is in other ways inseparably connected with all of the others. As a purchaser in the equipment markets of other States it competes with other companies. Its demands for labor and its scales of wages are necessarily felt at once by traction systems everywhere. In procuring its capital its officers have been generally compelled to market its securities to a large extent in other States, among investors who are particularly interested in such classes of investment. The close industrial and financial interdependence of the hundreds of physically unrelated local traction systems, the millions of dollars of capital placed by thousands of investors in plants which manufacture electric traction equipment, and the five billion of electric traction bonds and stocks to be found scattered all over the country in banks, insurance company reserves, and in private investment, translate the many local problems into a national problem.



## SECTION III

## FINANCIAL CONDITION OF THE ELECTRIC RAILWAY INDUSTRY

The investigation demonstrates that the financial condition of the electric railway industry is acute, and that to a very great extent it is not properly performing its public functions.

The record in this case shows that on May 31, 1919, there were 62 companies, having a mileage of 5,912, in receivership, that 60 companies had dismantled and junked altogether 534 miles of railways, and that 38 companies together had abandoned 257 miles of track. Since that date and up to July 1st, 1920, there have been 56 additional companies, having a mileage of 1,908, which have been thrown into receivership.

The capitalization of the industry, according to the 1917 census report, is represented by \$3,058,377,167 in bonds and \$2,473,846,651 of stock. For the year 1917 the net income of operating companies was \$56,450,930, representing an average rate of return of 2.81 per cent. upon the capital stock. In 1918 the evidence shows the net income was reduced to \$20,183,413, which represents a return of only 1 per cent. As a whole, there has been some improvement in the industry since the commencement of these hearings, due to the fact that there has been an increase in the car-riding habit since demobilization, and in a great many instances the fare has been increased beyond 5 cents. In spite of this slight improvement, however, the condition of the industry at the present time is serious. A great many companies are unable properly to maintain their track and equipment and to perform efficient public service, to secure funds with which to purchase new equipment, to build necessary improvements and extensions, or to refund maturing obligations.

A large number of factors have contributed to the present plight of the electric railway industry. These may be mentioned:

(a) They were not conservatively financed in their early years, and have not since made good their over capitalization, except to a limited extent, otherwise than through the process of bankruptcy and reorganization. In the early days the promoters of electric railway properties believed that long-term franchises with a 5-cent fare would be permanently profitable. Large sums of money were required to develop the business. In many cases the promoters issued bonus stock to represent their hopes and expectations. This bonus stock did not represent money, service or property, and added nothing to the value of the plant. As a result of this practice, there are many cases where the existing capitalization exceeds the investment in the plant or the value thereof.

(b) Neglect to amortize this excess capitalization.

(c) Failure to amortize the normal accrued depreciation.

(d) Payment of unearned dividends and neglect of ordinary maintenance.

(e) Overbuilding into unprofitable territory or to promote real estate enterprises, involved sometimes with political improprieties.

(f) A uniform 5-cent fare, which established a constant rate to apply during variable cost periods. This contract fare has been a source of irritation, resulting in litigation. During normal times many communities sought to have the fare reduced below the contract price. The companies insisted upon adhering to the contract, and they were sustained by the courts. During the recent high-cost period many companies have applied for an increase in fare to enable them to meet operating expenses and fixed charges. In many cases communities undertook to prevent the increase beyond the contract rate. Under the decisions of the Supreme Court of the United States and of the highest courts of a number of States, it is now established that a franchise provision naming a certain rate of fare creates no vested right of any car rider but that such fare can be properly changed by appropriate legislation and substituted by a higher charge.

As indicative of the fact that the 5-cent fare has not been adequate during the war period, we need only to call attention to the fact that on July 1, 1920, increased fares have been allowed in over 500 selected cities; 10-cent fares have been allowed in 69; 9-cent fares in two cities; 8-cent in 30 cities; 7-cent with 1-cent charge for transfers in 26 cities; 7-cent zones in 6 cities; 7-cent in 145 cities; 6-cent zones, with 2-cent transfer charge, in 10 cities; 6-cent for two zones, with 2-cent per zone thereafter, in 13 cities; 6 cents for each two zones in 4 cities; 6 cents cash fare in some cases in 149 cities; 5-cent zones and elimination of reduced rate ticket in 50 cities.

Boston has a 10-cent fare. Chicago, Washington, Cincinnati, Kansas City, Youngstown, and other large cities are on an 8-cent basis.

It would seem that so long as the railways depend upon earning power, and earning power depends upon passenger revenue, the fixed uniform fare is a broken reed for the industry or for the community to lean upon. Perhaps the general sentiment of the electric railways is best expressed by the evidence of Gen. Guy Tripp before this Commission, as follows:

"We were all living in a fool's paradise in the street railway business when we suddenly woke up—when the war woke us up—to find that no business which can not increase its revenues under any conditions can live or is sound."

Conversely, it may be said that no community should bind itself by contract or otherwise to continue, after normal conditions have been restored, a rate which might be found reasonable during this abnormal period.

(g) Limited franchises which impair credit and toward the expiration of the franchise result in neglect of the maintenance of the property.

(h) Special taxation and franchise obligations, having particular reference to street paving, street sprinkling, construction and maintenance of bridges used by the general public, general taxation, etc.

The American Electric Railway Association introduced a chart which showed that the total amount of taxes levied against the properties in 1917 amounted to \$45,756,695, of which taxes on real and personal property was \$21,804,619, and on earnings, capital and other taxes \$23,952,076, representing 10.11 per cent. of the operating expenses. In 1902 the ratio of taxes to operating expenses was 9.19 per cent. It is thus seen that there is only a small increase in the ratio of expense for this item since last year.

For the period from 1913 to 1918 the expenditures for all taxes, including paving and other imposts, has ranged from \$60,000,000 to \$65,000,000, corresponding to 10 per cent. of the operating revenues. The ratio varies very materially among the different plants.

The evidence on behalf of the companies therefore shows that on the basis of the 5-cent fare the taxes represent about one-half of a cent in the nickel which the car rider has been paying, and that they thus contribute materially to the necessity for fare increases. The argument has been made with considerable force that the car rider should not be required to pay for supporting the city's schools, its almshouses and other city institutions. It is contended that the company should be required to pay in taxes to the city only such an amount as would reimburse the city for its actual cost due to the presence of the street railway; and that such a plan of taxation alone would be consistent with the idea that the car fare should be based upon the real cost of rendering the actual service of transportation.

Although there is much force in this idea, and it should be borne in mind by all who are interested in street railway problems, we do not think the time is ripe for recommending its general adoption. The heavy taxation to which the companies are now subject came into being during the period of their prosperity and at a time when they were still essentially private concerns, relatively free from regulation. It was natural that their properties should be taxed in no less degree than the properties of other private corporations.

When a company comes to subject itself to such a comprehensive regulation as renders its property in effect a public instrumentality, then tax exemption begins to be in order. This course has indeed been followed in Cleveland, where as an incident to the passing of the properties under the Tayler plan of municipal regulation they came to be exempted in large measure from taxation. To the extent that it may become possible in any community under similar conditions to exempt street railway property from taxation, the rider's car fare will come more nearly to represent the actual cost of rendering the service of transportation—in itself a desirable result. But it would seem that the status of the company as a public agency should be well assured before such exemption should be attempted.

(i) *Automobile and jitney competition.*—For several years prior to the war, and to an increasing extent throughout the war period and up to the present time, the automobile has proven to be a serious competitor of the electric railways rendering local transportation service. Jitneys and automobile busses operating as common carriers have been able in some cases,



through the absence of sufficient public regulation, to engage in unfair and destructive competition with the electric railways for the most profitable part of urban passenger traffic. Strong as this competition has been, however, the electric railway industry as a whole has shown a very substantial increase in the riding habit. The operation of jitney busses as common carriers is much more restricted than the operation of private automobiles, but the jitneys have had a definite and intensive effect upon the street railway situation in particular communities, for the reason that they have engaged in direct and in some respects destructive competition with the street cars as public carriers. The experience of numerous communities, even before the extraordinary conditions growing out of the war, made it clear that unrestricted jitney operation, though more or less temporary and precarious in character, threatens the service, credit and solvency of the street railways.

(j) *Holding companies and banker control.*—About 75 per cent of the public utilities of the country are held, in whole or in part, by so-called "holding companies," which are responsible for their operation. This financing is done in large part through the securities of the parent company, which securities are supported by the securities of the various operating companies. This frequently gives an element of strength to the securities of the parent company which a single localized operating company could not in all cases present. If it were not for the supporting strength of these parent companies, many of the individual operating companies would have gone under before January 1, 1918.

Through these holding companies the electric railways threaten to become a banker-controlled industry. Those who have the ultimate say in matters of street railway policy from the point of view of investors have been dependent for their profits and their power upon the volume of securities outstanding and the frequency with which these securities have been exchanged or refunded. Holding companies in many instances have been responsible for over capitalization and have insisted upon drawing from the underlying companies every possible cent that could be secured in order to make a showing on these inflated securities. Hon. Joseph B. Eastman, at present a member of the Interstate Commerce Commission, discussed the question as follows:

"In the third place a factor of weakness, I think, was the control of the companies in many instances by holding companies organized in the form of voluntary associations, or, to use a more technical term, express trusts. Although the stock and bonds of the street railway companies themselves were issued under public supervision, these voluntary associations which corralled all their stock were subject to no regulation whatever and issued shares upon an inflated basis, and that had the result of accentuating the desire to draw every possible drop of income out of the underlying companies that could be secured in order to support earnings upon the inflated shares of these voluntary associations."

Through this system of financing and management the utilities have been largely controlled by persons living distant from the community affected by a particular electric railway, whose prime consideration has been to secure a return upon the property. This "absentee" management and control has not been successful in bringing about the proper spirit of co-operation between the local managers, employees, and the public. Since the electric railway companies come into immediate daily contact with large numbers of people, it is of the utmost importance that the industry should gain and hold the respect, confidence, and good will of its patrons. If the local public should invest its money in the stock and bonds of its local utilities there would be an improvement in the relations now existing between the corporation and the public.

(k) *Use of regulatory power to compel more and better service.*—Through the exercise of this power the companies have been required in many instances to improve their standards of service and equipment; to equip cars with vestibules for the protection of the motormen; and to give better heating, lighting and ventilation for the comfort and convenience of the passengers. They have also been obliged to install safety devices and make stops at frequent intervals. The exercise of the regulatory power of States and municipalities has undoubtedly added to the cost of the service.

(l) *Underlying companies and leased lines.*—Consolidations have been brought about through the unification of a number of separate corporations which owned and maintained lines of track within the same city. In many cases consolidations were made upon the condition that these companies should be guaranteed a certain rate of return or fixed sum, which represented a

high percentage yield upon the investment. The returns thus secured have been a frequent source of irritation, induced by a feeling that these underlying companies are being paid more than a reasonable return upon the value of their property. Your Commission believes that excessive payments to the underlying companies by the operating company have greatly diminished the net operating revenue, and that there can be no satisfactory solution of the street railway problem in such communities until the system has been valued as a whole, and the accounts so kept that the public may know that the rate of fare paid yields no more than fair return upon the value of such property.

(m) *Increasing demands of labor.*—The wages of street-railway labor prior to the war were generally insufficient from the viewpoint of a living wage, and the increases in wages that have taken place since the beginning of the war period have not on the average been as great as the increase in the cost of living.

At the time of our entry into the war, the average wages of motormen and conductors for companies of 100 miles and over were approximately 31.5 cents per hour. Since the war there has been a rapid increase in the wages of employees. The National War Labor Board by its awards in the year 1916 established the normal wages for this class of service in different cities, varying from 38 to 48 cents per hour, increasing wages 23½ per cent. The awards of the board mark the beginning of the rapidly increasing wages in this class of employment. An exhibit filed by the Amalgamated Association of Street and Electric Railway Employees of America shows the wages for conductors in the principal cities of the United States and Canada as of January 1, 1920. For convenience the exhibit is published as an exhibit attached to this report.

Since that date, new contracts have been agreed to which substantially increase the wages in a number of cities.

(n) *The war and the dollar.*—The conditions which have been here enumerated tended to break down the credit and stability of the electric railway industry. The increases in prices of labor and materials entering into the construction, maintenance, and operation of electric railways during the war period have corresponded with the increases in the prices of general commodities and in the wages of labor in all industries. Operating costs became so high that in many cases the revenues were not sufficient to pay even the current expenses of operation. Material and equipment prices reached abnormal heights. The increase over 1915 in railway motors and car equipment show 87 per cent.; locomotives, 87 per cent.; rotary converters, 75 per cent.; transformers, 70 per cent.; switchboards, 100 per cent.; motor generator sets 95 per cent.; turbines, 100 per cent.; pig iron, 106 per cent.; steel plates, 141 per cent.; copper, 58 per cent.; steel castings, 220 per cent.; coke, 35 per cent.; coal, approximately 100 per cent.; asbestos material, (which is largely used), 560 per cent.; other insulating materials, 125 per cent.; magnetic sheet steel, 280 per cent.; labor from 85 per cent. to 90 per cent.

(o) *Cost of new money.*—The destruction of capital incident to the World War and the unprecedented demand of the Government and industries for money, resulted in largely increasing the interest rate for loans. More attractive loans are now absorbing money available for investment, leaving the electric railways where, even with credit restored, they would have to compete in the money market with prosperous and unregulated enterprises.

These factors, and more particularly the increase in wages, fuel, material, and supplies, during and since the war period, have brought the electric railway industry to the point where in many instances it may be forced to abandon public service, and, in most cases, to a point where it will be unable to secure new capital to enable it to refund maturing obligations, secure new equipment, and to make necessary extensions and improvements unless some solution of the situation can be found.

#### SECTION IV EMERGENCY RELIEF

The evidence in this case shows that the State regulating commission and in a large number of cases the local tribunals have recognized that it has been necessary to grant emergency relief to secure to the communities the service of the electric railways.

With commendable initiative and oftentimes against a hostile public sentiment, the regulating officers have granted temporary increases in the fares without undertaking to determine the



value of the plants or make a long and exhaustive investigation. Very little, if any, criticism was made to us against State regulating commissions for their treatment of these utilities during the war period. The most serious difficulties were met with in communities where the charge was fixed by franchises, and the State authorities were without jurisdiction to regulate fares. During a war or other abnormal periods it would seem to be the duty of the State and municipal officers to deal promptly with petitions for increased fares and to afford such relief as will enable the street railway to serve the public and maintain its track and equipment in proper operating condition. The public always pays for a run-down plant, either through inferior service or higher charges. The first essential is service to the public. Due recognition of this fact will secure to the investor a safe return upon his investment and to the public uninterrupted operation.

#### SECTION V.

### CREDIT AND COOPERATION ARE THE COORDINATE NEEDS OF THE ELECTRIC RAILWAY

It is clear from this record that the two serious needs in the electric railway situation to-day are its need of credit and its need of co-operation between the public and the utility.

Credit will enable the electric railways to rehabilitate themselves, to adjust their capital accounts, and to meet the prices of normal replacements which are now upon higher price levels. The co-operation of labor will enable them to render continuous and popular service, to effect operating economies, and to get into their treasuries the full amount of revenue collected from the riding public. First-class credit and the full co-operation of their employees, if properly utilized in rendering adequate public service, would give the electric railways a well-nigh impregnable position in their relations to the public and tend to disarm and overcome the prevailing antagonism against them. With capital and labor performing their respective parts freely and well, restrictive regulation would be unpopular, and the demand for the substitution of public ownership and operation for private management would shrink into relative insignificance. The test of private ownership and management lies in the solution of these two problems of credit and co-operation. These problems must be solved, and if no solution is practicable under present ownership and control, then the only course open is the complete transformation of the electric railway industry into a governmental business. Each member of this Commission believes that credit can be secured and private operation maintained under public supervision.

Unless the confidence of the investor in the securities of the companies furnishing this essential public service be restored the public itself must in some way assume the burden of supplying the funds necessary for their continuance. To a degree unknown to private business enterprises, which to a certain extent are able to finance capital expenditures from earnings, the electric railways are dependent upon new investment—new capital—for the extension, improvement, and betterment of the service which they perform. Communities need and are constantly demanding additional local transportation facilities. They require large sums of money, which can only come from those with savings to invest. When the flow of new capital ceases, when the confidence of the investor in the ability of the enterprise to safeguard the integrity of the investment and to insure a fair return thereon ceases, new capital is unobtainable and the utility can no longer serve the purpose for which it was created.

This condition is now present. Lack of confidence in electric railway investment exists to-day to a degree which has caused a partial paralysis, is working havoc with the finances of the companies, and is depriving the public of the service to an alarming extent.

For rehabilitation and improvements and extensions which are vitally needed to meet the requirements of every growing community new capital at once and in large amounts is imperatively required, and until the force of circumstances convinces those with capital at their disposal that investment in electric railway securities affords safety and a fair return it cannot be obtained.

So far as the requirements in normal times are concerned, certain characteristics of the electric railways and certain conditions under which they operate tend to make their credit almost unlimited. In the first place, they have enjoyed a monopoly of the most convenient form of local transportation during a period of rapid industrial development and of rapid increase in

urban population. They have a continuous and immediate market for their "goods." They sell transportation as it is produced. While electric railway traffic fluctuates somewhat from year to year, according to the number of passengers and the prosperity that prevails, and fluctuates somewhat from season to season, from week to week, and from day to day, these fluctuations are relatively unimportant. The business of transportation goes on every day in the year. Under normal conditions the credit of the electric-railway business is its relatively small need for "fluid" or working capital. In this respect it occupies a position more independent than that of any other utility or any other private industry. It does a cash business. Almost 100 per cent. of its revenues are collected in advance, through the sale of tickets or at the time the service is rendered, from the collection of fares in the cars. Money flows into its coffers day by day in a relatively even stream. Before it pays the wages of its employees, the salaries of its officers, the claims resulting from injuries and damages, the rentals for the use of property, the interest and dividends on its investment, or its taxes, it has already collected from its patrons in cash full compensation for the service rendered. It does not send out bills.

The increase in revenues of the electric railways is a product of three lines of expansion. These are the increase in urban population, the increase in the riding habit, and the increase in the rate of fare. The gross operating revenues of the electric railways grew from \$247,000,000 in 1902 into \$630,000,000 in 1917—an increase of 163 per cent. For a number of years, particularly during the first decade of the century, there was a strong tendency toward fare reductions in many urban communities, but the evidence shows that for the country at large the total amount of electric railway operating revenues increased by a much greater per cent. than the number of revenue passengers during the 15 years ended with 1917. Since the latter date there has been a strong upward tendency in street railway fares. Statistics covering 75 per cent. of the electric railway traffic of the country indicate an increase of nearly 14 per cent. in the average fare paid from 1917 to 1919, and an increase of about 22 per cent. in passenger earnings during this two-year period.

Without a doubt the enjoyment by the electric-railway industry of a steady inflow of revenue of rapidly increasing volume, assured by the most fundamental conditions of modern life and the strongly developed habits of the people, is extremely favorable to credit. In what other industry could investment be made with greater assurance of security and continued earning power? The tracks for the most part are in the public streets where everybody can see them. The operation of the cars is most conspicuous. It would be hard to find another industry where the investment is completely visible to all and so freely observed by the entire population. If publicity of operation is a guaranty against the waste and disappearance of capital, then the position of the electric railway, where everybody can observe it every day, is surely conducive to the development and retention of credit. From this viewpoint how different is a street-railway investment from an investment in mining stock or in the fruit lands of the far West, or even in manufacturing enterprises in one's home city? The capital stock of electric railways does not require to be refunded, and under sound financial and regulating policies the proportion of stocks to bonds outstanding would undoubtedly be much greater than is shown to have been the case. Under such conditions refunding difficulties would be about negligible.

The record is not clear as to the amount of new money which may be required year by year, but a very conservative estimate places the figures at between \$175,000,000 and \$200,000,000 per annum, to be used in replacements, refunding obligations, extensions, and improvements.

For the purpose of restoring credit, it seems to be the general impression of all witnesses that the first necessity is for the industry to put into effect such economies of operation as will enable it to give good service at the lowest cost. Generally speaking, this can be done by the elimination of deadheads and other free service, the abandonment of nonprofitable lines, and, where practicable, the substitution of one-man cars for heavier equipment, the modification of special taxes or provisions for paving, snow removal, street closing, tolls, contributions toward the cost of public highways, bridges, etc., reduction of such rentals and power rates as may on investigation prove excessive, the co-operation with the public in developing faster schedules and installing skip stops at convenient places, rerouting of cars, the use of trailer cars, keeping street car tracks clear of traffic and other congestion, due to parking of motor cars on curbs, and the regulation of vehicular traffic. Much can also be done toward reduction in the cost of operation



by developing the proper spirit of co-operation with employees. All of the matters herein suggested properly come under the head of good management and regulation and in some cases would entail legislation, but in our judgment they do not wholly solve the street car problem, or invite needed capital into the industry. During the past two years efforts have been made to meet the difficulty by increasing fares. In many cases this has helped to tide them over a difficult period, but it has not stimulated the confidence of the investor in the integrity of the industry. New capital is not flowing in that direction.

An effort has also been made in a number of communities to increase the short-haul riding habit as well as the revenues by the introduction of the zone system for fares. This system has proven generally successful in some of the European countries, but it has met with varying success in the United States. Fundamentally the theory of the zone system is logical. It is that a passenger pays for what he gets. Under the present flat fare charge, the short-haul rider is paying for a service given to the long-haul rider.

The original failure of the electric railways to vary their rates of fare for transportation service, based upon the length of the ride, as services in all other lines of business are sold, is, in our judgment, one of the contributing factors to their present financial condition. The electric-railway industry is the only public utility which, as an industry, has consistently adhered to a flat basis. Steam and suburban roads charge on a distance basis. Gas, power, electric, and water power companies, generally, make their rates upon a measured basis, subject to a minimum charge per month and the telephone company grade all toll messages on a mileage basis, while observing in most cases a flat rate per month for local service. Whether or not under present conditions it would be to the interest of a community to introduce a zone system of fares, instead of the present flat fare system, is a question which we think should be decided by the community itself, having reference to the social problems involved.

## SECTION VI.

### LABOR ON STREET RAILWAYS

The labor policies of the electric street railways will in the future be of great importance as an element in the restoration and the permanent maintenance of their credit. The full co-operation of labor is essential to the highest prosperity and usefulness of the industry. This is particularly true because in case of the street railways the employees who immediately handle the service come into direct contact with the people who consume that service.

The evidence before this Commission shows that in the past the suspension of service, due either to strikes or lockouts, has been costly to both the employees and to the operating company, but the loss occasioned to those two groups has been secondary to the damage wrought to the public interest. The conditions which recurrently bring about such interruptions of service should be treated at their roots. The employees engaged in this occupation should have a living wage and humane hours of labor and working conditions. They should have the right to deal collectively with their employers through committees or representatives of their own selection. In all contracts and working agreements made between them and the employing companies there should be arbitration provisions under which all labor disputes which cannot be voluntarily settled shall be submitted to boards of arbitration composed of disinterested persons. The award of such a board of arbitration should be final and binding upon both parties to the controversy; for it is intolerable that the transportation service of a city should be subject to occasional paralysis, whether by strikes or by lockouts. It would seem that public authorities could well interest themselves in the formulation of such plans and rules for the arbitration of labor disputes under these contracts as will secure justice to both parties and as will assure continuity of service in so far as that may be possible of achievement.

But the full co-operation of labor in the street-railway industry will not have been brought about alone by the recognition of the right of collective bargaining which we have just been urging. Such recognition is but a foundation for full co-operation. The actual work of insuring it must come from the employees themselves to whom the right of collective bargaining is thus given. For that right carries with it a duty. It would seem to be the duty of the organization which bargains for the individual worker to interest it-

self actively and unremittingly in his delivering to the company his best strength and intelligence.

This Commission thinks that where the street-railway worker has the right of collective bargaining the public has the right to expect that the organization or association representing him will not only procure his wage, but will also continuously stimulate his whole-hearted constructive co-operation with the company and his effective service to the public.

## SECTION VII VALUATION.

It is the law that utilities are entitled to a fair return upon the value of their property used in public service at the time of the inquiry. The methods for finding fair value are in dispute. No permanent solution of the electric railway question can be found in the absence of a finding of value for rate-making purposes. This applies to commission form of regulation, cost-of-service contracts, or public ownership and operation. The public should know what it is paying for, and this question cannot be settled without knowing what the property is worth.

Although some evidence was introduced before this Commission on the subject of valuation, the Commission discouraged the introduction of testimony upon this question mainly because such testimony, no matter over how many weeks or months it might be extended, would have been but a fragmentary duplication of material already available in the official records of the Interstate Commerce Commission. Pursuant to an amendment of the Act to Regulate Commerce, approved March 1, 1913, which amendment is known as the Valuation Act, the Interstate Commerce Commission has during the past seven years been engaged in valuing the steam rail, roads, telegraph, and long-distance telephone companies in the United States. In connection with this work it has carried on a most extensive investigation into the subject of valuation for rate-making purposes, in the course of which investigation the carriers have been represented by a conference committee of 50, assisted by able lawyers, accountants, and engineers, while the public has been represented by the State public utility commissioners, their counsel, and by the General Counsel of the Interstate Commerce Commission. Every theory and principle of valuation has been fully and ably discussed, argued, and briefed.

On July 31, 1918, the Interstate Commerce Commission submitted its report in Valuation Docket No. 2, Texas Midland Railway. This report contains a full discussion of the different theories of valuation considered, the method employed by the Commission in assembling all the essential data, and discussion of the requirements of the Valuation Act, and the findings of the Commission upon most of the disputed questions. Subsequent decisions were made in the case of the Winston-Salem Southbound, Alabama, Birmingham & Atlantic, and Kansas City Southern Railroads. We are informed that decisions affecting many of the other railroads will be made during the present year.

The first requirement of the Valuation Act is for finding of original cost. The Commission is reporting original cost as fully as it possibly can be obtained from the best available evidence in each particular case. In its valuation proceedings it has been earnestly contended that the cost of reproduction new as of the date of inquiry should be taken to be the value of the property. Others have contended with equal earnestness that the value of the property should be limited to the original cost, as this item represents the money which has been actually invested by the stockholders and bondholders in the property. The rapid increase in the cost of labor, supplies, and material during and subsequent to the war period seems to have served as a peculiarly vivid indication that the original cost is a primary factor in finding value for rate-making purposes.

In our opinion, the decisions of the Interstate Commerce Commission, based upon long experience and investigation, will in large measure settle the standards of valuation. For this reason we suggest that municipalities and States which may be engaged, by arbitration or otherwise, in fixing the values of electric railways, should familiarize themselves with the practice, experience, and decisions of the Interstate Commerce Commission in these valuation cases.

The valuation, when once fixed as the basis for the financial return of the company, should logically come to affect the amount of capitalization. No matter what may be the plan of operation or of public regulation under which the company is working, if its financial credit



is to be strengthened through just and stable arrangements with a friendly public, it should, in the judgment of this Commission, voluntarily reduce any excessive capitalization to conform to such valuation as may have been determined upon.

#### SECTION VIII.

##### PRESERVATION OF RECORDS

We would particularly urge public officials and officers of the electric railways to co-operate seriously in the protection and preservation of all corporate, financial, and cost records.

Service-at-cost plans have been recently rejected by popular vote, largely on the issue of valuation, in Chicago, Denver, and Minneapolis. The public, justly or unjustly, has become so suspicious of the electric-railway companies that it may be expected to reject any service-at-cost or public ownership question submitted to popular vote, no matter how fairly the plan may be formulated, if it is not thoroughly convinced that the capital item has been fairly and honestly arrived at. The failure of a company to preserve its record may in the end hurt its stockholders more than it may the public.

#### SECTION IX.

##### AUTOMOBILE, JITNEY, AND MOTOR BUS

The automobile and jitney bus are facts. Jitney competition began about 1912, and was at first entirely unregulated. Even to-day in some places it continues without regulation of any kind, and in many places with only partial and inefficient regulation. In no instance, so far as this record shows, has this so-called jitney carriage of passengers been subjected to obligations as to the payment of taxes, maintenance of highways, character and extent of service, and financial responsibility for accidents under which the electric railway business is being conducted. The portion of the street paved and maintained by the electric railway, and in winter cleared of snow at its own expense, is taken advantage of by the jitney competitor without compensation either to the company or to the municipality, and often to the serious injury of the street railway by interfering with the prompt and regular movements of its cars. The jitneys prefer to confine themselves almost exclusively to the short-haul traffic. It appears that in the city of Bridgeport the jitneys carry about 50 per cent. of the passengers riding within  $1\frac{1}{4}$  miles of the center of the city; almost 69 per cent. of the passengers riding between  $1\frac{1}{4}$  and 2 miles from the center; a fraction less than 45 per cent. of those riding between 2 and  $2\frac{3}{4}$  miles from the center; and none riding more than  $2\frac{3}{4}$  miles from the center of the city.

The question from the point of view of the street-railway service is, What, if anything, is to be done about them? The public, through its governmental agencies, would not concern itself with the effects of this competition if it were not that local transportation is recognized to be an essential public service. So far as private automobiles are concerned, although they undoubtedly have their effect upon the extent to which people make use of the street cars, they are even now less important than human legs as competitors of the electric railways, and it is not deemed to be consonant with the theory of American institutions and government that the free movement of private citizens by their own means of locomotion should be restricted in order to compel them to make use of public vehicles, whether the latter be operated by private agencies or directly by the Government. All that could be properly done in this direction would be to compel the private vehicle using the public highways to pay license fees or taxes proportionate to the burdens they place upon the highways, as compared with the burden placed upon the highways by the street cars.

While there is some diversity of opinion as to the permanency of the electric railway industry, in view of the improvements which are being made in the use of gasoline and electric power machines, the opinion appears to be nearly unanimous that the electric railway operating on tracks is the most efficient means of furnishing local transportation service in the urban centers. The future of the gasoline public conveyance in urban transportation is entirely unreckonable. Great strides have been made and greater strides will doubtless yet be made in its use. Local public authority would indeed be exercising a dangerous power in unduly res-

stricting the use of new inventions for public transportation at a time when in nearly every large city the physical task, even for an electric railway well equipped, of carrying the public in decent comfort is becoming so formidable. If jitneys and automobile busses acting as common carriers were subject to regulation by State commissions and were required to procure a certificate of public convenience and necessity before establishing a route or undertaking to render public service, the motor vehicles would be prevented from entering into active competition with street car service unless the latter is shown to be wholly inadequate.

That street-railway service and jitney service cannot permanently exist and pay their own way in competition with each other under any ordinary urban conditions seems to be well established by experience and by the conditions inherent in local transportation service, but the belief is general that the motor bus may properly be used to supplement the service rendered by the street cars. The motor bus may be used to render a sort of supplementary service, such as the service now rendered on Fifth Avenue and certain other high-grade residential streets in New York City by the Fifth Avenue Coach Co., or the busses may be operated on other independent routes merely as feeders to the street railway system to take care of traffic in partially developed territory in advance of the time when street railway tracks can be laid with reasonable assurance that the investment will be self-sustaining.

Undoubtedly, the whole matter of the control or abolishment of jitney competition may be summed up in a few words. All transportation service is for the public. Jitneys and automobile busses cannot be repressed merely for the sake of compelling people to ride on the street cars, particularly if the car fares are higher than the jitney fares and the car service is less convenient than the jitney service. However, it is clearly in the public interest that all common carriers engaged in local transportation service should be required to render adequate and safe service, and that local transportation facilities should be developed in the most economical and effective way from the point of view of the community. Unnecessary and destructive competition ought not to be permitted, and the community at large should conserve the established facility that still is and promises to continue for an indefinite period the principal means of local transportation. The 'problem in a considerable measure is a local one, but in every case it should be solved with intelligent regard to the permanent interests and obligations of the community. If the street railways are to be allowed the benefits of even a qualified monopoly, they should be required to fulfil their obligations. They must render service that is adequate and convenient at rates that are attractive. The community can afford to go a long way to preserve street-railway service, and the efficient regulation of jitney and motor bus competition will aid considerably in restoring the confidence of investors in the future of the electric-railway industry and in increasing their gross and net revenues.

## SECTION X

### DEPRECIATION.

The electric railways should adopt the policy of setting aside a depreciation fund with which to take care of replacements and thus preserve the integrity of their investment. It would have a very wholesome effect upon credit. Such has not been the practice in the past. Deferred maintenance has accumulated to an alarming extent during the war period.

Generally speaking, regulating commissions have the power to prescribe methods of accounting and to establish the amount of the depreciation fund. This practice should be observed, and its adoption will improve the situation of the industry and be greatly in the interest of the public welfare.

## SECTION XI.

### EXTENSIONS SHOULD BE PAID FOR BY ASSESSMENTS ON OUTLYING PROPERTY BENEFITED.

Your Commission would urge that in every community, where and to such extent as may be practicable, consideration be given to the advisability of requiring extensions and rapid transit systems of subway and elevated to be paid for, not out of new capital invested through the medium of bonds or stock, which means for all time an added burden upon the car rider, but



from special taxes assessed against the owners of property in the district the value of which is enhanced by such extensions.

This would not be a new principle; it would be merely the application of an old principle. The American property owner has been accustomed to contributing out of the increase in value of his property to the cost of building streets and other public improvements. The principle is peculiarly applicable to improvements of city transportation systems because of the enormous increases in real estate values created when new extensions open up new territory or when the creation of rapid-transit facilities make outlying territory more available.

The City Club of New York, in 1908, a few years after the extension of the New York subway from One hundred and thirty-fifth to Two hundred and thirtieth streets, in Manhattan, had been built at a cost of \$7,375,000, made an authoritative study of new real estate values created by that extension in the district lying between One hundred and thirty-fifth and Two hundred and thirtieth streets. After deducting \$20,000,000 as a liberal estimate, based upon studies of parallel situations, of the natural increase in property values in that district which would have taken place without the subway extension, it was found that the increase in values clearly brought about by the subway extensions was \$49,200,000, an amount upward of seven times the cost of the improvements. The property in the district enjoyed an increase in value of 104 per cent. If, by assessment, it had borne the entire cost of the extension in the district, it would have still retained a new profit on the value of the land of 89 per cent., or an aggregate of \$41,825,000 for the district. The Manhattan extension just referred to, together with The Bronx extension beyond One hundred and thirty-fifth Street, cost \$13,075,000. These two extensions directly created, in a limited area lying near those extensions, new land values solely due to the extensions of \$80,500,000. Let it be borne in mind that the cost of the entire subway system from the Battery to Two hundred and thirtieth Street in Manhattan and to Bronx Park was about \$43,000,000.

In Philadelphia recent estimates of improvements in land values expected from rapid-transit projects in contemplation have been equally enlightening. Similar results would be certainly obtained in many other cities by studies similar to that made by the City Club of New York.

Is it not in accordance with laws of economic justice, then, that the landowner, as such, should share his benefit of increased land value with the public. Instead of the cost, \$7,375,000, of the Manhattan extension being borne by the owners of the land in the newly served territory, it was capitalized and translated into an annual charge of \$350,000 or more, a burden which had to be borne out of the car fares and which to-day helps to intensify the financial predicament in which the company finds itself. If the public pays out of its fares for the cost of maintaining and operating the line which will bring the outlying landowners such enrichment, should the latter not share with the public out of that enrichment, depending upon the degree in which he is benefited, by paying for or by helping to pay for the initial cost of construction of the line? That such a solution is just is rather significantly shown by the fact that in a number of cities landowners in outlying districts have offered spontaneously to contribute large sums to the company to assist it in constructing certain extensions. The present predicament of the street-railway companies is in many places partly due to overbuilding, a fault traceable to political or business pressures exerted by speculators in suburban lands who had little or no financial responsibility in connection with the street-railway extensions which they caused to be built for their immediate benefit. This action of the suburban land-owners of certain cities, on the other hand, is a significant expression of enlightened self-interest and a sound, constructive recognition of a fundamental principle of justice. The establishment of that principle by law, whether by changes in city ordinances, State statutes, or State constitutions, should, in our opinion, not be delayed. This thought is especially recommended to the attention of a number of communities which are now facing the necessity of extensions or rapid-transit improvements.

Three points in this connection should be briefly touched upon:

First. The amount of the assessment on any owner would probably have to become fixed by an appraisal sometime after the construction of the improvement, and the owner should be given the option of paying his assessment in installments over a course of years. Consequently the actual first financing of the extension might have to be by the city.

Second. It will doubtless be urged by some that such a system for building extensions would lead to municipal ownership. On the contrary, it seems to us that if properly administered it could, by reducing the acuteness of the fare question, serve with much force to offset the pressure for municipal ownership.

Third. As to the problems incident to allowing a private company, for a nominal rent and in return for undertakings as to repair and maintenance, to take over or use public property, similar problems incident to similar arrangements have already been ably and effectively handled in Boston and a number of other cities under State or municipal regulation in connection with subways and other structures.

If objection to the employment of such principle in constructing extensions be made upon the ground that public officers and land-owners along the line of the proposed extension are thus given the power to veto such extension, let it be remembered that the problem of extensions is not only a serious financial problem, but is also essentially and finally a long-range social problem. The development of city's street railways should be guided primarily not by the fortuitous financial expediences of a small group of bankers or real estate operators. It should be guided by the foresight and vision of those who are officially responsible for planning the city's growth and life, in terms of its water supply, its light, its streets, its sewers, its schools, its parks, its playgrounds, its civic centers, its night amusements, its community life, its libraries, its hospitals. It should be guided by those whose public duty it is to be interested in the health and happiness of the average city toiler and his family of growing children.

The call for municipal ownership to-day does not all emanate from dissatisfaction with the service in a narrow sense as riding facilities. It is largely an expression of feeling on the part of many that the street railway instead of helping to make conditions bearable, is contributing to making them unbearable; that it is not, with the functions and powers which it exercises, accomplishing what it might accomplish to reduce the abnormalities of city life. While areas within the city remain undeveloped and unserved by adequate transportation, toiling thousands find themselves dragged out miles farther, not to green lawns and spaces, but to a repetition of the same ugly congestion that they know in the city. The time will come when employers and educators will be forced to take cognizance of the impairment in working efficiency caused by such inconveniences as are suffered by the traveling public to-day. The time is approaching when cities will find it necessary to extend their street railways not on the basis of new property values or the earnings of any single line of rails, but on the basis, primarily, of what will be most consistent with the public health and public economy.

These motives are strongly at work underneath our situation to-day. The public's control over stock issues, service, routes, extensions, etc., is needed to-day not only in order that as part of a plan for restoring the credit of the street railways the community's interest may be protected by the guarantee of efficient management, but also because the city of to-day is taking a more conscious, constructive interest in the city of to-morrow. That interest can be recognized and cared for under private operation if the public authorities have the suggested controls. If such controls do not come into effective existence, then one of the strongest forces making for municipal ownership will continue to exert an increasing influence.

Your Commission trusts that this principle of paying wholly or in part for the construction of extensions out of special taxation of benefited property will be seriously studied and adopted where possible. It seems fundamentally sound. While its adoption presents legal difficulties, as has the adoption of many another newly recognized industrial-economic relation, it holds great promise for reducing the financial problems incident to public transportation.

## SECTION XII.

### RATE OF RETURN.

It is an axiom that property devoted to the public use should secure a fair rate of return. Where money is represented by bonds the return is a part of the contract and is not changed during the life of the contract. Where capital is represented by stock, the rate of return may vary according to the operating or financial conditions, and naturally it should compare favorably with the income upon other classes of investment. The undisputed testimony proves that the rate must be certain as well as reasonable to attract capital and that the absence of either of



these essentials will frighten the investor away. It may be a lamentable fact, but it is nevertheless true, that most of the electric railways are obliged to go to markets outside of their territory to secure new capital; and under existing circumstances the investor is no longer willing to place his money in speculative properties. The experience during the war period has taught investors that a fixed franchise fare fails to meet the requirements of the industry and there is no dissent from the suggestion that such fixed fare is a relic of a bygone age. There are certain conspicuous examples of an adherence to a contract fare which may be referred to, but they do not affect our conclusion that the rate of fare must be subject to prompt revision according to the needs of the particular property.

### SECTION XIII.

#### REGULATION OF PUBLIC UTILITIES

The foundation stone of the relations between communities and the companies must be the local authority under which they are permitted to conduct business. Since practically in all States the local government alone has the power to permit the use of highways by electric railways, the primary authority is the franchise grant or agreement containing the permit. Franchises are of varying terms and conditions. Until recently the franchises were generally limited to a certain number of years, but now it seems to be the settled conviction that such contracts are inherently imperfect. A reserve fund set aside during the term to take care of the property at the expiration of the franchise would result in increased charges for services; and, upon the other hand, the failure to take care of the investment in this way leaves the company at the will and caprice of the public. Instances have been referred to in this record where the railways are having difficulty in securing new franchises, while in some communities there seems to be a disposition to take over the property for junk values. Under these conditions it is natural for the company to neglect maintenance and give poor service. From the evidence it appears that there will be difficulty hereafter in securing new capital for properties that are governed by such franchises.

The undisputed testimony favors an indeterminate franchise by which the company is permitted to operate subject to the right of the public to take over the property by paying its value or agreed price. Such contracts protect both the investment against confiscation and the public against extortion by providing for payment of just compensation for the use of the property. The indeterminate franchise has been most thoroughly developed in the State of Wisconsin, and it has been recognized in the District of Columbia, and the States of Indiana and Massachusetts. Its earlier adoption by other States and communities would have prevented many conflicts and misunderstandings. We believe that this form of franchise should receive the favorable consideration of the public.

Prior to 1907 the regulation of electric railways was principally confined to the municipalities. The history of this industry is replete with examples where municipal corruption has resulted from this control. The street railway is, however, essentially a local institution and it cannot permanently prosper unless it has the confidence and co-operation of the public which it serves.

Since 1907 many States have taken over the control and regulation of this service and the communities within those States have been deprived of all jurisdiction. While the evidence shows that exclusive State control is preferable to exclusive municipal control, yet there appears to be a happy middle ground by which the municipalities may exercise control of the things that are peculiarly within their province, and the State retain jurisdiction over all other matters and also exercise supervision over the action of the local tribunals. No general rule would fit all cases.

We have street railways which do not extend beyond the limits of a city, others where two or more systems operate in the same city, while frequently a single company operates in, through, and between a large number of cities and villages. In New Jersey one system serves practically the whole State, and the same condition exists in Connecticut. Manifestly no rule of thumb can apply to these different conditions. The tendency is to extend the mileage and service of street railways and to unite different companies under one management, and as our cities and villages grow and the rural country becomes more populous and prosperous these electric railways will extend their lines to meet the growing demands. Under such conditions safety, efficiency, and economy will be promoted by extending to a superior regulatory board the control of the prac-

tices, rules, regulations, security issues, the system of accounts, and the charges to be paid for the service.

Effective local control is well-nigh impossible where a single company spreads out over an entire section of the State and this condition even constitutes a serious obstacle to municipal ownership. Where the street railway company operates wholly within one city there can be no insuperable objection to exclusive municipal control, when the people are ready and willing to exercise it. Secretary Baker testified upon this point as follows:

"Because I think the responsibility for the management of its own affairs is the greatest educational influence that the city of Cleveland has. The fact that the people of the city had studied and grasped and solved an intricate and complicated problem like the street-railway problem has made them a more self-conscious and a stronger, more virile people than they were before that problem was put up to them; and I should be very sorry indeed to see the responsibility for their own affairs in as intimate and important matter as street-railway service taken away and transferred to a State agency."

Cleveland has made a more extensive study of the electric railway problem than any other city in the country. Intelligent regulation cannot be secured without the assistance of expert operative, statistical, and engineering departments, and these are expensive items in any municipal budget.

In some respects uniformity is not only desirable but essential. This applies to the control of security issues, to accounting, the study and determination of depreciation and the control of such funds, fixing reasonable maintenance standards and their enforcement, and the methods and principles to be employed in valuing properties, either for rate making, capitalization, condemnation, or purchase. In a general way, the rules and principles which may be applied to the electric railway industry will be found available for other utilities, such as telephone, electric light, heating, power, and gas and water companies. In our judgment the State public service commissions should determine finally these matters, subject, of course, to an appeal to the courts where they err in judgment or transgress the law. Regulation by municipalities should be subject to an appeal to the State public service commission, thus bringing to bear upon the question involved the judgment of a body of men somewhat aloof from local influences. This would place the final authority in the State, and surely the communities, which are but subdivisions of the State, should prefer to submit their cause to a State tribunal in preference to a court, which rarely, if ever, has any regulating experience.

Theoretically, State control is removed from the influence of community prejudices. It certainly exercises its functions with a more judicial attitude, and with greater equity to both the communities and the companies; probably it is in most instances more economical and more efficient, since the State can create a better and more comprehensive organization for regulation at less cost. State control obviates conflict of authority between communities that is bound to obtain when utilities operate beyond the limits of a single municipality. It makes unnecessary the erection of metropolitan or public utility districts in order to secure uniform regulation, and it also results in a large saving to single communities which would otherwise be obliged to maintain its expert departments to perform this service.

The possibility of combining the best features of State and local regulation through a division of powers and duties was suggested by several witnesses and has been carefully considered by this Commission. It would seem to be desirable to leave to the communities, at least in the first instance, the determination of such questions as the assignments of streets upon which the railways may operate, questions involving speed, stops, schedules, rerouting of cars, and service during peak hours and otherwise, the extension of tracks, rate of fare, and the securing of certain statistical information where such information does not directly interfere with the accounting rules which have been prescribed by the State. Under these conditions the cities would be compelled to take a direct interest in the transportation business, leading to a more wholesome co-operation between the public and the railways. We believe this principle is worth trying, because it places the initial regulating responsibility upon the community, thus leaving the way open for sympathetic understanding and co-operation between the public and the industry, without which the industry cannot survive, and yet places the final responsibility upon the State,



which is best equipped to determine the questions involved in a sane, consistent, and impartial manner.

In a number of States commissions now have complete authority over all questions. There should be no change if the people are satisfied with that policy. It has unquestionably worked well in most of these States. We do, however, desire to emphasize our belief that any form of regulation will fail of its purpose if it does not secure public co-operation in the conduct of the utility. Our study of conditions as they exist in the principal cities of the country has shown that unless the public is in sympathy with the purposes of the management and lends assistance in their achievement, neither efficient nor economical service is possible. Co-operation cannot be obtained unless the public be informed as to all phases of the electric railway problem—financial, economical, and operating—and will not be continued unless the process and information is continued. This psychological factor involves a continuing task of undoubted magnitude, but whatever the regulatory authority may be, and however great the difficulties, the duty involved must be performed if the relations of the public and these highly essential utilities are to be maintained upon a basis that will insure proper service.

The electric railway problems admit of a satisfactory solution once the elements that compose them are made known and the process of ordinary economic and business common sense are applied. The duty of both the public authorities and those who control the electric railway enterprises of the country is plainly indicated. The time has come for a permanent and satisfactory settlement of the traction question. The interests of both the public and the companies lie so exactly parallel in almost every respect that there ought not to be any serious difficulty in arriving at a solution if both parties approach the subject in a proper spirit.

#### SECTION XIV

##### SERVICE-AT-COST PLANS

The electric railways have responded to the improvements in the arts and sciences, and it may also be said that the science of regulation has fairly kept pace with the requirements of public service and the growth of the industry. Franchises have been the result of experiment. The contract fare established an unsound rate basis, and in some instances commissions were slow to reach conclusions in rate cases. Investors lost confidence in the electric-railway business. It was thought that a contract must be evolved which would meet all the requirements of the industry as well as of the public. Thus came the cost-of-service contract. It has worked well in Cleveland during the most difficult period in the history of the industry. It seems to have worked fairly well in the other cities where it has been tried out, and to justify the following statement made by Secretary Baker:

"I believe that any community in America will pay cheerfully and willingly whatever rate of fare is necessary to carry the people on their street railroads, and to maintain good service in their communities, if they are sure that they are paying only proper operating expenses, proper maintenance, and a proper return on capital."

Practically all of the witnesses for the electric-railway industry favored service-at-cost franchises. That service should be provided at cost is not a new principle in the regulation of public utilities. It is back of all public service commission regulation, and expresses the reaction from the original contractual relations between utilities and communities under which fares were fixed and limited, while return was not. The application of the term "service at cost" in recent working agreements between the electric railways and the cities of Cleveland, Cincinnati, Dallas, Montreal, and to a limited extent the city of Boston, does not clearly describe such agreements. They are, in effect, devices for automatically and quickly adjusting price to cost. It is, therefore, not so much the principle back of such plans as it is the method provided for carrying that principle out that concerns the Commission in this phase of the traction problem. Without going into unnecessary detail, it will suffice to state that the main features of the contract are:

- (a) Fair valuation of the property.
- (b) Capitalization to conform thereto.
- (c) Agreed return upon capital.
- (d) Public control of capital issues, and, to a certain extent, over expenditures.
- (e) Public supervision over management, operation, and service.

(f) Automatic changes of rates, to meet fluctuating economic conditions, and to insure a proper return on the value.

(g) Private operation, subject to the right of the municipality to purchase the property at its value, or upon an agreed price.

(h) Reduction of taxes and assessments.

The service-at-cost contract is still in its experimental stage, and naturally a number of criticisms have been made of it. These have been considered, but with the limited experience under this contract we believe that the criticisms are more theoretical than real. If these defects prove to be substantial and result in unduly increasing the cost of service, they can be removed by improved regulation, but if they cannot finally be avoided, then it would seem that the public has ample protection in the contract's purchase provisions.

Generally speaking, the main criticism of this form of contract is that it tends toward inefficiency and uneconomic operation; that it contains no provision for the control of strikes, or uninterrupted service; and that labor and management may co-operatively increase the cost of operation to the point where the public may be unduly burdened.

From the point of view of credit restoration, the outstanding advantage of this contract is that rates are automatically adjusted to meet changing operating conditions. We are inclined to think that the assurance of an automatic adjustment of fare will do more than anything else to restore the confidence of the investor in these properties. Public confidence will be immeasurably strengthened through the valuation of the properties, because the figure that is established constitutes the basis of the return to the investor, and fixes at least the minimum price which the public will be obliged to pay if, at some future time, it should decide to purchase and operate the property. When the value is thus fixed, there can be no further dispute as to capitalization or excessive profits, because the people will know just what they are paying for. The controlling element in its favor is the restoration of public confidence in the corporation, due to the removal of those elements of friction which have so frequently engaged the attention of the public. It might also be said that to a certain extent it removes the railways from the idea of speculative gain, and places them upon a common-sense business basis where the people pay for the service they get, and where the opportunity for large profits no longer exists, since economies and lower operating costs are reflected in reduced charges for service. When the contract is once established, the opportunity for municipal corruption is reduced to the minimum.

We strongly recommend the principles of the service-at-cost contract, not as the only solution, but as one means of solving a very difficult problem.

In cases where the electric railways operate in more than one municipality and between different municipalities, such service-at-cost contracts can properly, in our judgment, be made only with the public-service commission, and in such cases the provisions of the contract should apply in any particular community to the system as a whole rather than to its individual parts.

## SECTION XV.

### PUBLIC OWNERSHIP AND OPERATION.

It is urged by many that public regulation of the street railways has failed, and that the properties should be taken over by the municipalities or the State. Dr. Delos F. Wilcox concluded his able and interesting analysis of the testimony given in this connection with that suggestion. Some members of the Commission individually feel that eventually municipal ownership might prove generally desirable and that there may, perhaps, be communities in the United States in which on account of the responsibility of the local government and the acuteness of the present conditions, municipal ownership should be resorted to. The experience of Boston, San Francisco, and Seattle are being watched with great interest, but they have not continued long enough to justify any conclusion as to the relative merits of public as against private operation. The Commission is unanimous on this point: That there has not been sufficient experience with public ownership and operation of street railways in this country to enable us to recommend it as a permanent solution of this problem. In some of the foreign countries it has apparently worked well. We do not believe under present conditions that this method of operation would be successful in most of the cities of the United States to-day.

Aside from the serious question whether municipalities as at present organized can oper-



ate electric railways as efficiently and satisfactorily as private enterprises, our conviction upon this subject is based upon the great political difficulties which would have to be overcome, such constitutional amendment, legislation, and the fiscal burdens incident to the purchase by cities of great public utilities, and upon the further fact that in many sections of the country the lines of the railway extend through many cities and villages and into rural territory. It is assumed, however, that these latter difficulties could be mastered by a community thoroughly awakened to the necessity for such a change.

We are certain that much can be accomplished by private initiative, stimulated and aided by thorough public regulation; that the final solution could, in many communities, be found under private management, and that in any event, the reforms which have been urged by the Commission should be instituted, since those reforms would serve to place the relations between the street railway and the public upon a more just and equitable basis.

#### CONCLUSION.

We have conceived the scope of this inquiry to be to ascertain, first, the actual financial and service conditions of the electric railways of the United States at the present time; second, the causes which have contributed to such conditions; third, what readjustments of the relations between the electric railways and the communities which they serve must be brought about in order to restore the confidence of the public and to put the companies upon such a financial basis for the future as will enable them to render continuous and efficient service to their respective communities.

We have not entered into a minute discussion of the different franchise provisions throughout the country, nor have we undertaken to suggest any details which should be incorporated into any new contract, but have preferred to confine ourselves to suggesting the broad outlines of such new relations.

The Commission is not pessimistic as to the future. The electric-railway problem admits of a satisfactory solution, once the elements that compose it are made known and the principles of ordinary economic and business common sense are applied.

The duty both of the public authorities and of those who control the electric-railway enterprises of the country is plainly indicated. The time has come for stable and satisfactory settlements of traction difficulties.

The Commission can go no further than to point out the principles upon which readjustment should be based. The task is really that of the State and local authorities upon the one hand, and of the companies upon the other. Failure to rehabilitate the industry and the service is possible only if those upon whom the responsibility rests fail to undertake the work or pursue it in a spirit that makes settlement impossible.

Respectfully submitted this 28th day of July, 1920.

CHARLES E. ELMQUIST, *Chairman.*  
EDWIN F. SWEET, *Vice Chairman.*  
P. H. GADSDEN.  
W. D. MAHON  
ROYAL MEEKER.  
C. W. BEALL.  
LOUIS B. WEHLE.  
GEORGE L. BAKER.

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#### APPENDIX 10

(Signed) "R.F.S."  
" " "A.F.M."  
" " "W.A.A."  
" " "C.H.M."

Toronto, 18th July, 1921.

Dear Mr. Sutherland:

I now have the following statement from Mr. Robertson of his charges and disbursements:

Disbursements for assistance, experts, witnesses, stenographers, etc. ....	\$ 18,000 00
L. A. Herdt, expert investigations .....	2,763 80
White Engineering Co., Account for expert investigations .....	11,158 09
R. M. Feustel, Expert investigations .....	678 50
Balance due to Mr. Robertson .....	4,315 28

\$ 36,915 67

I understand that Mr. Robertson has been paid \$4,000 on account by the Commission. I have not therefore included this item in the statement but only the balance of his account, viz. \$4,315.28.

I have not yet been able to get the details of the \$18,000 item but I understand that this is substantially accurate. I am promised the details and if you wish it will forward them as soon as I receive them.

The advances to the commission direct total \$101,000. namely, \$6,000 in 1920 and \$95,000 in 1921.

Yours sincerely,  
(Signed) W. E. RANEY.

The Hon.

Mr. Justice Sutherland,  
Deliver.

Toronto, July 19th, 1921.

Dear Mr. Sutherland:

The item of \$18,000.00 in my letter of yesterday should it appears be in exact figures \$17,619.54, made up according to the following statement:

Rent of offices, furniture, typewriters and janitor services .....	\$ 1,227 71
Stenographers .....	2,626 00
Supplies, newspaper services, telephone, telegraphing and incidentals .....	754 86
Travelling expenses (Mr. Hawkes and Mr. Elson) .....	301 15
Witnesses, erpenses and fees .....	237 00
Mr. Hawkes .....	4,900 00
Mr. Elson (to March 15th, when engagement ended) .....	1,750 00
Mr. Vercoe (services and expenses in full) .....	5,822 82
	\$ 17,619 54

Yours sincerely,  
(Signed) W. E. RANEY

The Honourable,

R. F. Sutherland,  
Osgoode Hall,  
Toronto.

## HYDRO- ELECTRIC POWER COMMISSION OF ONTARIO

Office of the Secretary

190 University Avenue,

Toronto, July 28th, 1921.

Mr. Justice Sutherland,  
Chairman, Radial Railway Commission,  
Osgoode Hall,  
Toronto, Ont.

Dear Sir:—

Re Expenses of Hydro-Radial Investigation

With further reference to my letter to you of the 27th inst. and the foot note to your



letter of that date, I herewith enclose you the reference to the persons and amounts that go to make up the item of \$114,453.54.

Yours truly,

(Signed) W. W. Pope,  
Secretary.

DETAILS OF THE HYDRO-ELECTRIC POWER COMMISSION'S EXPENSE IN  
RESPECT TO RADIAL ENQUIRY.

ITEM—\$114,453.54.

SALARIES:

Month.	Name.	Amount	Total
July			
1920			
	T. U. Fairlie .....	\$150 00	
	E. T. Agate .....	88 00	
	E. Awde .....	50 75	
	A. Bethune .....	10 50	
	H. B. Goedike .....	93 54	
	J. C. Krumm .....	113 75	
	A. C. Oxley .....	71 05	
	H. A. Rhodes .....	43 52	
	K. Weatherbe .....	96 00	
	H. A. Wood .....	95 70	
	H. Wykes .....	90 00	
	A. G. Young .....	54 18	
	R. L. Coulter .....	40 00	
	C. M. Low .....	108 50	
	L. H. Hornsby .....	4 25	
	H. W. Gzowski .....	44 40	
	Insurance .....	15 04	
	J. H. Congdon's Survey Party .....	137 09	
	A. H. Greenless .....	25 81	\$1,332 08

August.

A. E. K. Bunnell.....	183 87
J. F. Clarke .....	58 06
J. Hall .....	46 45
E. R. Purvis .....	36 30
John G. Baukat .....	350 00
T. U. Fairlie .....	325 00
W. G. Hewson .....	425 00
H. A. S. Molyneaux .....	65 00
Romney Ames .....	95
E. W. Wood .....	33 60
R. M. A. Thompson .....	52 17
E. T. Agate .....	384 00
E. Awde .....	117 25
A. Bethune .....	130 50
Horace Beck .....	63 75
D. B. Gardner .....	144 50
H. B. Goedike .....	166 80
H. Gzowski .....	192 00

Month.	Name.	Amount.	Total.
	F. H. Ianson .....	100 31	
	J. C. Krumm .....	223 50	
	S. G. Manley .....	43 20	
	A. C. Oxley .....	145 42	
	H. A. Rhodes .....	122 91	
	H. R. Silcox .....	4 00	
	K. Weatherbe .....	240 00	
	H. A. Wood .....	250 94	
	H. Wykes .....	126 00	
	A. G. Young .....	210 00	
	S. S. Kirby .....	172 80	
	R. L. Coulter .....	150 00	
	C. M. Low .....	150 50	
	S. F. Gastrell .....	32 55	
	H. Jordan .....	20 00	
	E. M. Salter .....	162 60	
	D. S. Abbott .....	115 00	
	Roy N. Adams .....	100 00	
	D. O. Kelly .....	125 00	
	J. S. McIntyre .....	200 00	
	C. E. Tindale .....	125 00	
	J. Arnold Williamson .....	90 00	
	E. F. Hinch .....	220 00	
	R. G. Sneath .....	225 00	
	O. Stanley .....	250 00	
	L. H. Hornsby .....	140 14	
	G. H. McCall .....	11 20	
	H. D. Rothwell .....	18 90	
	W. P. Baulch .....	33 00	
	L. S. Locke .....	28 75	
	Insurance .....	60 41	
	J. H. Congdon Survey Party .....	280 65	
	G. F. Hanning Survey Party .....	165 00	
	Hamilton Survey Party .....	235 48	
	Toronto Terminal Survey Party .....	341 00	7,694 46

## September.

W. A. Fairlie .....	50 81
T. A. Wilkinson .....	259 70
Alex. S. White .....	112 50
John G. Bauket .....	350 00
T. U. Fairlie .....	440 00
W. G. Hewson .....	425 00
A. H. McBride .....	25 50
W. R. Robertson .....	150 00
Romney Ames .....	3 15
B. Martin .....	6 60
David Ross .....	76 50
E. W. Wood .....	96 00
R. M. Thompson .....	78 27
E. T. Agate .....	400 00



Month.	Name.	Amount.	Total.
	E. Awde .....	141 75	
	A. Bethune .....	132 00	
	W. B. Gardner .....	18 70	
	F. B. Goedike .....	101 40	
	H. Gzowski .....	75 60	
	F. H. Ianson .....	53 62	
	J. C. Krumm .....	69 00	
	S. G. Manley .....	45 60	
	A. C. Oxley .....	59 15	
	H. A. Rhodes .....	93 32	
	K. Weatherbe .....	300 00	
	H. A. Wood .....	197 05	
	H. Wykes .....	193 50	
	A. G. Young .....	99 33	
	S. S. Kirby .....	180 00	
	R. L. Coulter .....	180 00	
	C. M. Low .....	175 00	
	S. F. Gastrell .....	49 50	
	Harold Jordan .....	20 00	
	E. M. Salter .....	140 00	
	W. A. Fairlie .....	175 00	
	D. S. Abbott .....	57 50	
	Roy N. Adams .....	100 00	
	D. O. Kelly .....	125 00	
	J. S. McIntyre .....	200 00	
	C. E. Tindale .....	125 00	
	J. Arnold Williamson .....	90 00	
	E. F. Hinch .....	220 00	
	R. G. Sneath .....	225 00	
	O. Stanley .....	300 00	
	T. A. Wilkinson .....	350 00	
	H. Molyneaux .....	130 00	
	E. K. Bunnell .....	300 00	
	J. F. Clarke .....	150 00	
	J. Hall .....	160 00	
	E. R. Purvis .....	125 00	
	L. H. Hornsby .....	50 87	
	V. A. Beacock .....	112 50	
	J. H. Caster .....	154 00	
	S. B. Iler .....	50 00	
	J. J. Jeffery .....	34 00	
	H. D. Rothwell .....	162 00	
	F. T. Stocking .....	161 70	
	J. N. Wilson .....	108 50	
	W. P. Baulch .....	150 00	
	L. S. Locke .....	87 00	
	M. J. Kennedy .....	50 00	
	Insurance .....	43 54	
	J. H. Congdon Survey Party .....	264 33	
	Hamilton Terminal Survey Party .....	120 00	
	G. F. Hanning Survey Party .....	314 00	
	A. H. Greenless Survey Party .....	25 00	
	Railway Traffic Counting Payroll, August .....	127 80	
	Railway Traffic Counting Payroll, August .....	218 70	

Month.	Name.	Amount.	Total.
	Railway Traffic Counting Payroll, August .....	42 00	
	Railway Dept. Overtime (August) .....	558 48	
	Electric Railway Dept. Pay Roll .....	154 00	
	Electric Railway Dept. Pay Roll (Temporary) .....	47 00	10,666 47

## October.

J. G. Baukat .....	350 00	
T. U. Fairlie .....	180 00	
W. G. Hewson .....	425 00	
A. H. McBride .....	26 56	
W. R. Robertson .....	300 00	
R. M. Thompson .....	86 67	
E. T. Agate .....	304 00	
E. Awde .....	175 00	
A. Bethune .....	75 00	
H. Gzowski .....	86 40	
S. G. Manley .....	55 20	
K. Weatherbe .....	120 00	
H. A. Wood .....	137 78	
H. Wykes .....	218 25	
S. S. Kirby .....	180 00	
R. L. Coulter .....	110 00	
C. M. Low .....	175 00	
S. F. Gastrell .....	3 45	
H. Jordan .....	24 00	
E. M. Salter .....	107 80	
W. A. Fairlie .....	168 00	
R. N. Adams .....	100 00	
D. O. Kelly .....	125 00	
J. S. McIntyre .....	100 00	
C. E. Tindale .....	125 00	
E. F. Hinch .....	220 00	
R. G. Sneath .....	225 00	
O. Stanley .....	300 00	
T. A. Wilkinson .....	350 00	
H. Molyneaux .....	130 00	
A. E. K. Bunnell .....	300 00	
J. F. Clarke .....	150 00	
J. Hall .....	142 00	
E. R. Purvis .....	125 00	
F. T. Stocking .....	8 75	
W. P. Baulch .....	150 00	
L. S. Locke .....	28 50	
M. J. Kennedy .....	100 00	
Insurance .....	37 17	
Traffic Counting Pay Roll (October) .....	264 05	
Traffic Counting Pay Roll (October) .....	30 90	
Traffic Counting Pay Roll (October) .....	91 00	
Survey Party Counting Pay Roll (October) .....	451 88	6,862 36



Month.	Name.	Amount	Total
1920.			
November:			
	J. G. Baukat .....	350 00	
	A. S. L. Barnes .....	37 15	
	T. U. Fairlie .....	190 00	
	W. G. Hewson .....	425 00	
	W. R. Robertson .....	300 00	
	E. T. Agate .....	80 00	
	E. Awde .....	42 00	
	A. Bethune .....	18 00	
	R. Coulter .....	38 00	
	H. Jordan .....	10 00	
	S. S. Kirby .....	18 00	
	C. M. Low .....	12 25	
	C. M. Low .....	10 50	
	S. Manley .....	4 00	
	E. M. Salter .....	42 00	
	K. Weatherbe .....	33 00	
	H. Wykes .....	20 25	
	W. P. Baulch .....	150 00	
	Roy N. Adams .....	100 00	
	D. O. Kelly .....	125 00	
	J. S. McIntyre .....	100 00	
	C. E. Tindale .....	31 25	
	A. E. K. Bunnell .....	300 00	
	J. F. Clarke .....	150 00	
	E. F. Hinch .....	220 00	
	H. Molyneaux .....	130 00	
	E. R. Purvis .....	125 00	
	R. G. Sneath .....	225 00	
	O. Stanley .....	300 00	
	T. A. Wilkinson .....	350 00	
	H. D. Rothwell .....	18 00	
	M. J. Kennedy .....	100 00	
	L. S. Locke .....	84 00	
	Insurance .....	38 32	
	J. H. Congdon's Survey Payroll (October) .....	455 97	
	Traffic Counting Payroll .....	787 20	
	Traffic Counting Payroll .....	114 60	
	Miscellaneous .....	28 30	
	Traffic Counting Payroll (November) .....	242 00	
	Temporary Staff Payroll .....	144 00	
	Miscellaneous Survey Payroll .....	120 00	6,068 79
December.			
	J. G. Baukat .....	350 00	
	A. S. L. Barnes .....	123 75	
	T. U. Fairlie .....	112 50	
	W. G. Hewson .....	425 00	
	W. R. Robertson .....	300 00	
	E. T. Agate .....	76 00	
	R. L. Coulter .....	30 00	

Month.	Name.	Amount.	Total.
	L. H. Hornsby .....	31 48	
	H. Jordan .....	14 00	
	S. S. Kirby .....	39 60	
	C. M. Low .....	50 75	
	C. M. Low .....	5 25	
	A. C. Oxley .....	11 73	
	K. Weatherbe .....	81 00	
	H. A. Wood .....	81 12	
	H. Wykes .....	24 75	
	A. G. Young .....	39 48	
	R. N. Adams .....	100 00	
	D O. Kelly .....	125 00	
	J. S. McIntyre .....	50 00	
	A. E. K. Bunnell .....	300 00	
	Norman A. Faulkner .....	90 00	
	J. F. Clarke .....	150 00	
	E. F. Hinch .....	250 00	
	H. A. Molyneaux .....	130 00	
	E. R. Purvis .....	150 00	
	R. G. Sneath .....	275 00	
	O. Stanley .....	350 00	
	T. A. Wilkinson .....	375 00	
	R. A. Paul .....	169 36	
	H. T. Bates .....	148 40	
	W. P. Baulch .....	150 00	
	W. P. Baulch .....	15 00	
	L. S. Locke .....	52 50	
	M. J. Kennedy .....	75 00	
	Insurance .....	37 42	
	Railway Checkers Payroll, Dec. 4th.....	210 60	
	Railway Checkers' Payroll, Dec. 11th .....	91 20	
	Railway Checkers' Payroll, Dec. 21st .....	90 00	
	Railway Dept. Overtime .....	302 00	
	Railway Checkers' Payroll, Dec. 28th .....	85 80	
	Railway Checkers' Payroll, Dec. 31st .....	75 60	5,644 29

## 1921

## January

J. G. Baukat .....	\$ 350 00
A. McIntee .....	10 50
A. S. L. Barnes .....	118 25
T. U. Fairlie .....	275 00
W. G. Hewson .....	425 00
W. R. Robertson .....	300 00
E. T. Agate .....	184 00
A. Bethune .....	24 00
R. Coulter .....	48 00
H. Jordan .....	10 00
S. S. Kirby .....	37 80
C. M. Low .....	96 25
K. Weatherbe .....	79 50
H. A. Wood .....	102 30
H. Wykes .....	65 25



Month	Name	Amount	Total
	Lester S. Locke .....	16 50	
	N. K. Faulkner .....	90 00	
	A. E. K. Bunnell .....	300 00	
	J. F. Clarke .....	150 00	
	E. F. Hinch .....	250 00	
	H. Molyneaux .....	130 00	
	E. R. Purvis .....	150 00	
	R. G. Sneath .....	225 00	
	O. Stanley .....	300 00	
	T. A. Wilkinson .....	350 00	
	R. A. Paul .....	16 93	
	H. T. Bates .....	200 00	
	W. P. Baulch .....	150 00	
	M. J. Kennedy .....	75 00	
	Insurance .....	18 53	
	Railway Checkers Payroll, Jan. 8th .....	97 20	
	Railway Checkers Payroll, Jan. 11th .....	46 00	
	Railway Checkers Payroll Jan. 21st .....	97 80	
	Railway Checkers Payroll Jan. 24th .....	140 40	
	Railway Checkers Payroll, Jan. 29th .....	99 30	
	Survey Payroll Jan. 1—31 .....	41 00	
	Survey Payroll (E. Duncan party) .....	42 00	
	Railway Checkers Payroll Feb. 6th .....	120 00	
		\$	5,231 91

## February

John G. Baukat .....	\$ 262 50
A. S. L. Barnes .....	93 50
T. U. Fairlie .....	300 00
T. U. Fairlie .....	200 00
W. G. Hewson .....	425 00
W. R. Robertson .....	300 00
R. A. Paul .....	112 00
E. T. Agate .....	232 00
E. Awde .....	96 25
A. Bethune .....	87 00
H. W. Beck .....	22 40
R. L. Coulter .....	100 00
W. A. Fairlie .....	78 75
H. Jordan .....	30 00
S. Kirby .....	162 00
C. M. Low .....	175 00
S. G. Manley .....	60 30
G. H. McCall .....	42 00
K. Weatherbe .....	150 00
H. A. Wood .....	126 50
H. Wykes .....	78 75
A. McIntee .....	175 00
P. M. Higgins .....	158 90
J. B. Waterous .....	124 96
R. N. Adams .....	100 00
D. O. Kelly .....	125 00
J. S. McIntyre .....	50 00
N. A. Faulkner .....	90 00

Month	Name	Amount	Total
	A. E. K. Bunnell .....	300 00	
	J. F. Clarke .....	150 00	
	E. F. Hinch .....	250 00	
	H. Molyneaux .....	130 00	
	E. R. Purvis .....	150 00	
	R. G. Sneath .....	225 00	
	A. Sanley .....	300 00	
	T. A. Wilkinson .....	350 00	
	H. T. Bates .....	200 00	
	W. P. Baulch .....	150 00	
	M. J. Kennedy .....	75 00	
	Lester S. Locke .....	9 00	
	Insurance .....	50 54	
	Railway Checkers Payroll, Feb. 16 .....	156 00	
	Railway Checkers' Payroll, Feb. 21 .....	41 40	
	Railway Checkers' Payroll, Feb. 16-28 .....	244 40	
	E. Duncan Survey Party Payroll .....	283 45	
	A. H. Greenless Survey Party .....	590 00	
		\$	7,612 60
March			
	J. G. Baukat .....	350 00	
	A. S. L. Barnes .....	75 90	
	T. U. Fairlie .....	325 00	
	W. G. Hewson .....	425 00	
	W. R. Robertson .....	300 00	
	E. T. Agate .....	216 00	
	E. Awde .....	148 75	
	A. Bethune .....	118 50	
	R. L. Counter .....	126 00	
	W. A. Fairlie .....	96 25	
	F. B. Goldike .....	8 60	
	H. Jordan .....	34 00	
	S. S. Kirby .....	142 20	
	C. M. Low .....	80 50	
	E. G. Manley .....	88 20	
	A. C. Oxley .....	98 00	
	H. A. Rhodes .....	124 10	
	K. Weatherbe .....	225 00	
	H. A. Wood .....	55 00	
	M. J. Kennedy .....	75 00	
	H. Wykes .....	148 50	
	A. T. Spencer .....	148 50	
	H. Robertson .....	175 00	
	Lester Locke .....	16 50	
	H. Robertson .....	175 00	
	P. M. Higgins .....	16 50	
	W. P. Baulch .....	150 00	
	J. B. Waterous .....	138 25	
	A. S. Abbott .....	115 00	
	J. S. McIntyre .....	50 00	
	N. A. Faulkner .....	90 00	
	A. E. K. Bunnell .....	300 00	



Month	Name	Amount	Total
	J. F. Clarke .....	150 00	
	E. F. Hinch .....	250 00	
	H. Molyneaux .....	130 00	
	E. R. Purvis .....	150 00	
	R. G. Sneath .....	225 00	
	A. Stanley .....	300 00	
	T. A. Wilkinson .....	350 00	
	H. I. Bates .....	200 00	
	Insurance .....	59 88	
	Railway Checkers' payroll, March 1-15 .....	172 20	
	Railway Checkers' payroll, March 16-31 .....	286 80	
	Miscellaneous survey party payroll .....	794 95	

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 \$7,705 08

## April

J. G. Baukat .....	350 00
A. S. L. Barnes .....	41 25
T. U. Fairlie .....	290 00
W. G. Hewson .....	425 00
W. R. Robertson .....	400 00
R. A. Paul .....	18 00
E. T. Agate .....	104 00
E. Awde .....	14 00
A. Bethune .....	132 00
H. W. Beck .....	49 00
R. L. Coulter .....	88 00
L. H. Hornsby .....	20 35
H. Jordan .....	30 00
J. C. Krumm .....	60 00
A. E. K. Bunnell .....	300 00
J. F. Clarke .....	150 00
E. F. Hinch .....	250 00
H. Molyneaux .....	130 00
E. R. Purvis .....	150 00
R. G. Sneath .....	225 00
A. Stanley .....	300 00
T. A. Wilkinson .....	350 00
H. I. Bates .....	200 00
S. S. Kirby .....	82 80
Lester Locke .....	4 50
C. M. Low .....	126 00
W. P. Baulch .....	150 00
S. G. Manley .....	85 50
M. J. Kennedy .....	100 00
J. H. McCall .....	49 00
A. C. Oxley .....	35 00
H. R. Silcox .....	51 20
K. Weatherbe .....	144 00
H. A. Wood .....	66 55
J. S. McIntyre .....	100 00
H. Wykes .....	150 75
R. N. Adams .....	100 00
A. T. Spencer .....	57 75

Month	Name	Amount	Total
	D. O. Kelly .....	125 00	
	H. Robertson .....	175 00	
	D. S. Abbott .....	115 00	
	A. McIntee .....	175 00	
	J. B. Waterous .....	152 25	
	W. L. Dixon .....	33 60	
	Insurance .....	50 40	
	Railway checkers' payroll, April 15 .....	244 80	
	Railway dept. overtime .....	390 00	
	Miscellaneous payroll, April 30 .....	678 10	
	Railway Frt. checkers' payroll .....	1,051 65	
		<hr/>	\$ 8,570 45

## May

C. M. Low .....	101 50
S. S. Kirby .....	66 60
J. G. Baukat .....	350 00
J. C. Krumm .....	17 50
A. S. L. Barnes .....	13 20
W. M. Bostwick .....	34 50
H. Jordan .....	28 00
L. H. Hornsby .....	68 45
T. U. Fairlie .....	241 50
R. L. Coulter .....	87 60
H. G. Hewson .....	425 00
H. W. Beck .....	140 00
W. R. Robertson .....	300 00
A. Bethune .....	105 00
R. M. A. Thompson .....	19 56
E. Awde .....	133 00
E. T. Agate .....	320 00
S. G. Manley .....	79 20
A. Stanley .....	300 00
C. W. Motton .....	100 00
N. A. Faulkner .....	90 00
H. A. Rhodes .....	15 30
D. O. Kelly .....	125 00
K. Weatherbe .....	252 00
H. T. Bates .....	200 00
C. E. Tindale .....	125 00
H. A. Wood .....	19 25
H. Wykes .....	189 50
R. N. Adams .....	100 00
A. G. Young .....	53 97
D. S. Abbott .....	115 00
A. T. Spencer .....	7 45
A. McIntee .....	175 00
H. Robertson .....	169 75
E. R. Purvis .....	150 00
E. F. Hinch .....	250 00
H. Molyneaux .....	130 00
J. F. Clarke .....	150 00
R. G. Sneath .....	225 00



Month	Name	Amount	Total
	Lester Locke .....	45 00	
	A. E. K. Bunnell .....	300 00	
	M. J. Kennedy .....	75 00	
	T. A. Wilkinson .....	350 00	
	W. P. Baulch .....	150 00	
	J. S. McIntyre .....	200 00	
	Insurance .....	111 95	
	Insurance .....	11 95	
	Railway checkers' payroll .....	24 00	
	Miscellaneous, Office and Service Bldg., Payroll, May 1-15 .....	1 37	
	Railway checkers' payroll, May 1-15 .....	2,361 10	
	A. J. Clark, salary .....	50 00	
	Miscellaneous, Office and Service Buildings, Payroll, May 16-31 .....	1 37	
	Temporary help payroll .....	95 00	
	Miscellaneous Electric Railway payroll .....	518 41	
	Railway Dept., overtime payroll .....	150 00	
			\$ 9,856 03

## June

J. G. Baukat .....	350 00
Wm. Bostwick .....	23 00
T. U. Fairlie .....	211 50
W. G. Hewson .....	425 00
W. R. Robertson .....	300 00
E. Awde .....	14 00
A. Bethune .....	57 00
R. L. Coulter .....	83 00
L. H. Hornsby .....	185 00
H. Jordan .....	16 00
J. C. Krumm .....	57 50
C. M. Low .....	8 75
K. Weatherbe .....	138 00
A. G. Young .....	52 50
H. Robertson .....	33 08
A. McIntee .....	175 00
D. S. Abbott .....	115 00
R. N. Adams .....	100 00
D. O. Kelly .....	125 00
G. S. McIntyre .....	150 00
A. E. K. Bunnell .....	300 00
J. F. Clarke .....	150 00
E. F. Hinch .....	250 00
H. Molyneaux .....	130 00
E. R. Purvis .....	150 00
R. G. Sneath .....	225 00
A. Stanley .....	300 00
T. A. Wilkinson .....	350 00
H. T. Bates .....	200 00
W. P. Baulch .....	150 00
M. J. Kennedy .....	75 00

Month	Name	Amount	Total
	L. S. Locke .....	6 00	
	Insurance .....	44 26	
	Railway checkers' payroll, May 16-31 .....	2,751 50	
	Railway checkers' payroll, June 1-10 .....	177 60	
	Miscellaneous, payroll, June 30th .....	2 00	
	Railway checkers' payroll, June 21 .....	560 40	
	Miscellaneous, survey party payroll .....	612 50	
	Car checkers' payroll, June 16-30 .....	614 90	
	Car checkers' payroll, July 2 .....	168 00	
		<hr/>	\$ 9,836 49
July			
	Salaries for July (estimated) .....	5,214 62	
	Transferred from Electric Railways:		
	Wentworth-Waterloo Lines .....	6,898 99	
	Niagara-St. Catharines Lines .....	1,225 72	
	Toronto-Suburban Railway .....	2,745 40	
		<hr/>	\$ 16,084 73
	TOTAL SALARIES .....		<hr/> \$103,165 74

## EXPENSES:

Name.	Date.	Amount.	Total
A. H. Greenless	Aug., 1920 .....	\$ 6 80	
	Sept., 1920 .....	15 97	\$ 22 77
F. Ferrier	Aug., 1920 .....	17 30	
	Nov., 1920 .....	34 10	
	March, 1921 .....	12 50	
	April, 1921 .....	25 32	
		<hr/>	89 22
J. H. Congdon	Aug., 1920 .....	50 00	
	Sept., 1920 .....	190 15	
	Oct., 1920 .....	84 75	
	Nov., 1920 .....	66 00	
	Dec., 1920 .....	10 00	
		<hr/>	400 90
A. L. McDougall	Sept, 1920 .....	37 40	
	Feb., 1921 .....	48 00	
		<hr/>	85 40
T. U. Fairlie	Sept., 1920 .....	125 83	
	Oct., 1920 .....	13 43	
	Nov., 1920 .....	211 54	
	Dec., 1920 .....	3 18	
	March, 1921 .....	4 60	
	April, 1921 .....	49 69	
	May, 1921 .....	64 12	
	June, 1921 .....	32 46	
	July, 1921 .....	8 57	
		<hr/>	513 42
H. W. Czowski	Sept., 1920 .....		60
G. F. Hanning	Sept., 1920 .....		51 00
V. A. Beacock	Sept., 1920 .....		43 40



Name	Date	Amount	Total
G. F. Gorham	Sept., 1920 .....	50	
	Oct., 1920 .....	50	
		<hr/>	1 00
W. H. Fawcett	Sept., 1920 .....	80	
	Oct., 1920 .....	65	
	Jan., 1921 .....	1 45	
	Feb., 1921 .....	90	
	April, 1921 .....	2 50	
		<hr/>	6 30
E. T. Agate	Sept., 1920 .....	14 75	
	Oct., 1920 .....	16 95	
		<hr/>	31 70
L. S. Locke	Oct., 1920 .....	4 45	
	Nov., 1920 .....	5 05	
		<hr/>	9 50
F. T. Stocking	Oct., 1920 .....	10 25	
J. N. Wilson	Oct., 1920 .....	19 60	
J. H. Carter	Oct., 1920 .....	30 55	
W. N. Robertson	Oct., 1920 .....	95 40	
	Jan., 1921 .....	108 10	
	April, 1921 .....	116 90	
	July, 1921 .....	151 10	
		<hr/>	471 50
A. S. White	Oct., 1920 .....	55 15	
	Nov., 1920 .....	27 80	
		<hr/>	82 95
H. S. Rothwell	Oct., 1920 .....	42 15	
	Dec., 1920 .....	6 45	
		<hr/>	48 60
S. B. Iler	Oct., 1920 .....	17 40	
R. F. McGill	Oct., 1920 .....	85	
A. F. McGill	Oct., 1920 .....	36 00	
E. R. Bradley	Nov., 1920 .....	87 90	
	Jan. 1921 .....	22 40	
		<hr/>	110 30
E. Duncan	Nov., 1920 .....	2 29	
	April, 1921 .....	20 60	
	May, 1921 .....	5 00	
		<hr/>	27 89
H. A. Wood	Nov., 1920 .....		1 85
W. G. Hewson	Nov., 1920 .....	127 17	
	Jan., 1921 .....	558 17	
	March, 1921 .....	523 42	
	May, 1921 .....	905 29	
	June, 1921 .....	466 16	
		<hr/>	2,580 21

Name	Date	Amount	Total
D. Marshall	Nov., 1920 .....	67 85	
T. A. Wilkinson	Dec., 1920 .....	198 90	
A. G. Young	Dec., 1920 .....	32 85	
J. C. Baukat	Feb., 1921 .....	292 42	
E. B. Davis	Feb., 1921 .....	10 00	
J. E. Clark	March, 1921 .....	13 10	
W. J. Baulch	March, 1921 .....	4 53	
A. McPherson	March, 1921 .....	46 15	
R. Ridgeway	April, 1921 .....	80 11	
Colson, Brice & McCann	April, 1921 .....	26 29	
J. A. Wills	May, 1921 .....	34 10	
E. E. Fry	May, 1921 .....	34 60	
S. C. Honsberger	May, 1921 .....	64 10	
C. Misener	May, 1921 .....	34 10	
W. M. Bostwick	May, 1921 .....	90	
	June, 1921 .....	3 85	
		<hr/>	4 75
R. S. Coulter	May, 1921 .....	61 49	
	June, 1921 .....	50 14	
		<hr/>	111 63
W. E. Cann	May, 1921 .....	212 90	
H. C. Bates	July, 1921 .....	1 50	
Petty Cash	Sept., 1920 .....	41 80	
	Oct., 1920 .....	137 51	
	Nov., 1920 .....	84 35	
	Dec., 1920 .....	68	
	April, 1921 .....	60 42	
		<hr/>	324 76
		<hr/>	6,287 80
	Estimated Additional Expenses	5,000 00	11,287 80
		<hr/>	<hr/>
			\$114,453 54

## HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO

Office of the Secretary

190 University Ave.,

Toronto, July 26th, 1921

The Hon. Mr. Justice Sutherland,  
Chairman, Radial Railways Commission,  
Osgoode Hall,  
Toronto.

Dear Sir,—In further reference to your communication of June 29, addressed to Mr. C. C. Robinson, in which you request certain information on the expenditures of the Hydro-Electric Power Commission of Ontario in connection with Hydro-Electric Railways and your Commission; I am instructed by the Commission to enclose you detailed statements Nos. 1, 2 and 3, as follows, viz:—

No. 1. A statement of the amounts expended by the Commission on investigation, surveys, by-laws and reports under the Hydro-Electric Railway Act of 1914.



- No. 2. A statement of the expenditures of the Commission on behalf of the Municipalities and the Hydro-Electric Radial Association, and other expenses of the Hydro-Electric Power Commission contracted in respect of the enquiry, but which may be charged to capital account, provided the construction of the proposed lines is proceeded with.
- No. 3. A statement of expenditures on account of Hydro-Electric Railways chargeable to capital account.

The statements enclosed cover all expenditures made by the Commission on account of Hydro-Electric Railways, or the investigation before your Commission, to date.

I am,

Yours truly,

(Signed) W. W. POPE,  
Secretary

#### STATEMENT No. 1.

#### ELECTRIC RAILWAY ENGINEERING, INVESTIGATIONS, SURVEYS, BY-LAWS AND REPORTS UNDER HYDRO-ELECTRIC RAILWAY ACT, 1914.

For Fiscal Period ending October 31, 1914 .....	\$ 42,385 47
For Fiscal Period ending October 31, 1915 .....	45,925 18
For Fiscal Period ending October 31, 1916 .....	38,675 66
For Fiscal Period ending October 31, 1917 .....	37,909 76
For Fiscal Period ending October 31, 1918, .....	9,597 29
For Fiscal Period ending October 31, 1919 .....	47,156 48
For Fiscal Period ending October 31, 1920 .....	68,609 86
Period Nov. 1, 1920 to July 2, 1921 .....	4,036 41
	<hr/>
	\$294,296 11

#### STATEMENT No. 2.

#### EXPENSES OF THE MUNICIPALITIES AND THE HYDRO-ELECTRIC POWER COMMISSION RE ROYAL COMMISSION INVESTIGATING PROPOSED HYDRO RADIALS

On behalf of Municipalities and Hydro-Electric Radial Association:

Counsel .....	\$ 36,955 00
Experts and Assistants .....	87,610 81
Transcript of Evidence .....	10,538 60
Hydro-Electric Power Commission:	
Counsel .....	28,029 82
Salaries and Expenses of Engineers and Assistants .....	114,453 54
General Administrative Office Expense, including proportionate share of salaries of Executive, Accounting and Stenographic Departments.....	8,016 73
Miscellaneous—Blue Prints, Photographs, Stationery, etc., etc. ....	8,063 02
Interest accrued upon all above expenditures .....	6,185 63
Other expenses of Hydro-Electric Power Commission of Ontario contracted in respect of enquiry, but may be charged to capital account providing construction of the proposed lines is proceeded with:	
Toronto-Port Credit Line .....	3,595 26
Port Credit-St. Catharines Line .....	16,521 77
Toronto-Eastern Line .....	12,249 15

July 23, 21.

## STATEMENT No. 3

EXPENDITURES ON ACCOUNT OF HYDRO-ELECTRIC RAILWAYS  
CAPITAL ACCOUNT

	Expenditure to July 20-20	Expenditure July 20-20 to July 2-21.	Total
<b>Toronto-Port Credit Line:</b>			
Engineering, Superintendence, Surveys, etc. ....	\$ 16,834 81		16,834 81
Right of way, cost of land and purchasing expenses .....	623,340 02	* 6,328 60	629,668 62
Miscellaneous Expense, printing and checking bonds, etc.	989 02	6,190 69	7,179 71
Interest .....	25,530 63	36,199 49	61,730 12
	<u>\$666,694 48</u>	<u>\$ 48,718 78</u>	<u>\$715,413 26</u>
<b>Port Credit-St. Catharines Line:</b>			
Engineering, Superintendence, Surveys, etc. ....	\$ 47,868 78		\$ 47,868 78
Right of way, cost of land and purchasing expenses ....	63,996 33	* 9,047 33	73,043 66
Ties Purchased .....	72,281 35	* 262,766 88	335,048 23
Miscellaneous Expense, printing and checking bonds, etc.	14,723 85		14,723 85
Interest .....	3,844 11	18,115 68	21,959 79
	<u>\$202,714 42</u>	<u>\$289,929 89</u>	<u>492,644 31</u>
<b>Toronto-Eastern Line:</b>			
Engineering, Superintendence, Surveys, etc. ....	\$ 27,041 95		\$ 27,041 95
Miscellaneous Expense, printing and checking bonds, etc.	2,661 33	10,213 09	12,874 42
Interest .....	835 18	1,230 39	2,065 67
	<u>\$ 30,538 46</u>	<u>\$ 11,443 48</u>	<u>\$ 41,981 94</u>

## SUMMARY:

Toronto-Port Credit Line .....	\$ 715,413 26
Port Credit-St. Catharines Line .....	492,644 31
Toronto-Eastern Line .....	41,981 94
	<u>\$1,250,039 51</u>
Surveying Instruments and other equipment .....	4,201 60
	<u>TOTAL .....\$1,254,241 11</u>

\*Contracted for before July 21st.

## HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO

Office of the Secretary

190 University Ave.,

Toronto, July 27th, 1921.

Mr. Justice Sutherland,  
Chairman, Radial Railway Commission,  
Osgoode Hall,  
Toronto, Ont.

## RE EXPENSES OF HYDRO-RADIAL INVESTIGATION

Dear Sir:—

Your letter of July 27th came duly to hand in which you ask for additional information with respect to the statements furnished:



1: Does the item \$36,955.00 refer to Mr. McKay's Counsel fees?

Yes. This represents the total sum paid to Mr. McKay.

2: Does this item of \$87,610.81 include Mr. Arnold's fees (including assistance and expenses) and if so how much thereof is referable to his said fee and expenses?

Yes. Mr. Arnold's fees and expenses are \$54,355.17.

3: Does the item for Hydro-Electric Power Commission Counsel of \$28,029.82 refer to the Counsel fees of Mr. MacInnes and Mr. C. C. Robinson.

Yes. Mr. C. S. MacInnes \$8,580.45 and Mr. C. C. Robinson \$19,449.37.

As to the other items of \$114,453.54 you ask that the Commission give some brief and general details with reference to persons and amounts. As regards this last item, I am advised by the Chief Accountant, who has his Staff engaged at present in the preparation of these details, that owing to the fact that the sum is made up from monthly salary expenses, including employees engaged in this and other work, it is necessary to examine all salary payrolls from July, 1920, to the end of the present month, in order to get the percentage of these payrolls charged to this particular account. That, I am advised, would be quite impossible to have completed for you this evening. I am advised, however, that it will in all probability be ready by this time to-morrow.

I assure you that every effort will be made to get this information to you at the earliest possible moment.

Yours truly,

(Signed) W. W. POPE,

Secretary.

#### APPENDIX 11

(Signed) "R.F.S."

" "A.F.M."

" "W.A.A."

" "C.H.M."

#### REPORT OF F. C. CLARKSON, ESQUIRE, F.C.A., RESPECTING HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO HYDRO-ELECTRIC RE FINANCES

Toronto, March 3rd, 1920.

Dear Sir:

#### *Re Hydro-Electric Power Commission of Ontario*

I shall be obliged if, at your early convenience, you will, as the Auditor appointed to audit and report to the Government upon the accounts of the Hydro-Electric Power Commission of Ontario, inform me in a brief manner as to—

1. The state of the affairs of each of the Systems and Companies controlled or operated by the Commission.
2. The approximate amount of money which must be obtained by the Province within the next two years and be loaned to the Commission in order to allow it to complete works undertaken by it and now in course of construction, and to pay debts which become due within that period.

In addition, I request that you, as Auditor, express your opinion as to the soundness, from a business standpoint, of each of the undertakings now operated by the Commission, and as to whether there are any reasons why, with the Government sympathetic and desirous of supporting the Commission, so far as it can be done with benefit to the municipalities and the Province, the Government cannot safely continue and extend support to the Commission.

I desire to say that the information asked for is of such importance that I would appreciate a report from you without undue delay.

Yours very truly,

(Signed)

E. C. DRURY.

G. T. Clarkson, Esq., Accountant,  
15 Wellington Street West,  
Toronto, Ontario.

Toronto, March 19th, 1920.

The Honourable E. C. Drury,  
Premier of the Province of Ontario, Toronto.

Sir:

*Hydro-Electric Power Commission of Ontario.*

I am in receipt of your communication of the 3rd inst., wherein you request that, as Auditor appointed to audit the accounts of the Hydro-Electric Power Commission of Ontario and to report thereon to the Government, I inform you in brief manner as to—

- (a) The state of affairs of each of the systems and companies controlled or operated by the Commission, and
- (b) The approximate amount of money which must be obtained by the Province within the next two years and be loaned to the Commission in order to allow it to complete works undertaken by it and now in course of construction, and to pay debts which become due within that period.

In addition, you request that I, as Auditor, express my opinion as to the soundness, from a business standpoint, of each of the undertakings now operated by the Commission, and as to whether there are any reasons why, with the Government sympathetic and desirous of supporting the Commission, so far as it can be done with benefit to the municipalities and the Province, it cannot safely continue and extend support to the Commission.

In reply thereto I beg to report that the undertakings controlled and operated by the Commission divide themselves into the following classes, namely:

1. The Niagara System.
2. The Severn System.
3. The St. Lawrence System.
4. The Wasdell System.
5. The Eugenia System.
6. The Ottawa System.
7. The Muskoka System.
8. The Rideau System.
9. The Thunder Bay System.

all of which systems either purchase or develop power and distribute it to municipalities which are under contract with the Commission to pay the cost of such power, including interest on the cost of works, provisions for renewal of works and sinking fund allowances for the repayment of the cost of the works of each system respectively. In addition, the Commission has acquired and owns:

10. The Essex System.

which purchases power from the Niagara System and disposes of it to private and other customers located in seven municipalities in Essex County;

11. The Thorold System;

which is a system of lines employed to transmit power to certain customers in the vicinity of the Town of Thorold;

12. The Monteith Development,

constructed by the Commission for the Department of Agriculture of the Province of Ontario for use by it for purposes of Soldiers' Re-establishment;

13. The Ontario Power Company (and its subsidiary, The Ontario Transmission Company, Limited),

operated as a separate entity, which supplies under contract and otherwise a large proportion of the power distributed by the Niagara System, and also sells power to other customers;

14. The Bonnechere River Storage System,

which is a small water storage system adjacent to the Town of Renfrew.

The Commission manages and operates:



15. The Central Ontario System,  
on behalf of the Province of Ontario and at the sole risk of the Province.

It has under construction:

16. The Ontario Niagara Development Works (Chippawa Power Canal), for the purpose of affording an additional supply of power to the Niagara System.

The Commission is also engaged in promoting the construction and operation of:

17 Hydro-Electric Radial Railway Lines.

under the terms of the Hydro-Electric Railway Act, 1914, and for those municipalities which have contracted with it in respect thereto.

The condition of affairs of each of such systems and undertakings is as follows:

1. *Niagara System.*

The Niagara System purchases power in the vicinity of Niagara Falls, Ontario, and distributes it to 115 municipalities and 26 other customers located between Niagara Falls and Toronto and Dundas and Windsor, in the Province of Ontario. The investment of the Commission in System to 31st October, 1919, the end of its last fiscal year, amounted to \$14,306,372, provided out of moneys advanced to the Commission by the Province of Ontario.

At its inception the System purchased its complete supply of power from the Ontario Power Company, under a contract expiring April 1st, 1950, which permits the Commission to take upwards of 100,000 horse-power at the price of \$9 per horse-power, and such price is mentioned in the early contracts made between municipalities and the Commission; subsequently with increased demands upon the System the Commission found it necessary to purchase further power and at prices in excess of \$9 per horse-power—accordingly the Power Commission Act was amended and the Commission given authority to charge the municipalities with the average cost of power purchased, acquired or developed by it in the vicinity of Niagara Falls.

In order to obtain additional power for the Niagara System, and so that it might control water privileges of importance on the Niagara River, the Commission as of date 1st August, 1917, purchased the Ontario Power Company, which owned an hydraulic power development works, with a capacity of about 160,000 horse-power at Niagara Falls. The price paid for the undertaking was \$7,994,900 in 40-year 4 per cent. bonds of the Commission, guaranteed by the Province of Ontario, and for these the Commission obtained ownership of practically the entire capital stock of the Ontario Power Company amounting to \$10,000,000 par value. The assets of the Ontario Power Company and its subsidiary, the Ontario Transmission Company, Limited, were, at the time of purchase, subject to bonded indebtedness of about \$14,450,000 held by the public.

Subsequent to the purchase of control of the Ontario Power Company and up to 31st October, 1919, the Commission advanced \$3,510,441 to that Company for the construction of a third pipe line to its works and to permit it to acquire and instal electrical equipment necessary to develop 50,000 horse-power additional from water employed through the pipe line. It was estimated that the pipe line and equipment would cost between \$1,500,000 and \$2,000,000,, and that profits from sale of the extra power so to be obtained and indemnities looked to be received from the Dominion Government would before the spring of 1923 largely defray, if not wholly return, the cost of the pipe line—accordingly the Company agreed, under written contract with the Queen Victoria Niagara Falls Park Commission, to remove the pipe line on or before that date. The pipe line came into use about June, 1919, and it is now apparent with increase in the costs of the pipe line and equipment, that the expectations of the Commission will not be fully realized but it is probable that if the Power Company shall remove the pipe line by the date mentioned it will do so at the cost to itself of a substantial loss. The Commission states that the Queen Victoria Niagara Falls Park Commission has agreed to allow the pipe line to remain for as long as it shall be required by the Ontario Power Company provided certain specific improvements be made.

Under Section 22 of the Power Commission Act, the expenditures of the Commission upon any works undertaken for the benefit of any municipality or municipalities are repayable by such municipalities, and this provision, it is held, makes the municipalities on the Niagara System responsible for the cost to the Commission of the Ontario Power Company and of the third pipe line to its works. Under section 23 of the Act, the municipalities are liable for the cost of

power to the Commission at the point of development for operating costs and for interest upon the cost of the works and for sinking fund payments. Legal opinion is, therefore, that the municipalities on the Niagara System must in each year pay to the Commission:

1. Interest on the \$7,994,900 bonds given by the Commission as the purchase price of the capital stock of the Ontario Power Company.
2. Interest on the advances made by the Commission to the Ontario Power Company for construction of the third pipe line and added equipment to the works of the Ontario Power Company.
3. Sinking fund allowances sufficient to repay the purchase price paid for the capital stock of the Power Company and the cost of the third pipe line and electrical equipment,
4. The contract price of \$9 per horse-power and \$12 per horse-power now charged for power by the Ontario Power Company to the Niagara System.

*Less*

5. Any excess of income over operating costs of the Power Company, as the cost to such municipalities of power delivered to the Niagara System by the Ontario Power Company in each year.

Under the terms of the Ontario Niagara Development Works Act, 1916, and in 1916, the Commission commenced construction of the Chippawa Power Canal for the purpose of affording a still further supply of power to the Niagara System, and work upon it has to this point been largely carried on by day labour under the control and supervision of the Commission. Estimates submitted in or about June, 1915, indicated that the works would probably cost approximately \$10,500,000 for a canal capable of producing 100,000 horse-power, with extensions to 300,000 horse-power and electrical equipment capable of generating 100,000 horse-power. Subsequently and after construction had been commenced, it was believed with increasing costs that \$15,000,000 to \$16,000,000 would require to be expended on the works. Since that time the capacity of the canal has been increased by the Commission over that contemplated in 1915, and when finished the works will, with necessary electrical equipment installed, be capable, it is estimated, of developing upwards of 450,000 horse-power. The sum of \$40,000,000 is now stated as the possible ultimate cost of the works and of such amount approximately \$18,500,000 has been expended to date. The works are expected to be in a position to deliver power in the fall of 1921.

The Niagara Development Works Act requires that power supplied by the Chippawa Works shall be paid for at the cost of the same to the Commission, including:

- (a) Interest on the cost of the works,
- (b) Provision for the renewal of the works,
- (c) Sinking fund for repayment of the cost of the works, and
- (d) Such other charges as the Commission may deem necessary and proper, and this

means that after deducting the amounts recovered from the sale of power to other customers, the municipalities on the Niagara System will, with the supply of Chippawa power to them, be responsible for the cost of operating the Chippawa works and to repay through sinking fund—when and as the same shall be required—the investment of the Commission in the Chippawa works.

Under a Treaty between the Dominion of Canada and the United States of America regulating the use of the waters of the Niagara River, the Dominion of Canada, in the right of the Province of Ontario, is entitled to divert 36,000 cubic feet per second of the waters of the Niagara River above the Falls. Of this 36,000 second feet the Ontario Power Company is said to be entitled to divert such amount as it shall require through any works located and constructed within the confines of the Queen Victoria Niagara Falls Park, with the approval of the Commission in control of such Park; thereafter other licensees have the right, with limitations, to the use of the water remaining. The Ontario Power Company with its third pipe line, is now diverting upwards of 13,000 to 13,500 second feet, while the Electrical Development Company, the Canadian Niagara Power Company and other users are diverting approximately 19,000 to 20,000 second feet—a total of 32,000 to 33,500 second feet. In addition, the Electrical Development Company is contending for the right to divert the whole or a part of the surplus remaining of 2,500



to 4,000 second feet, and litigation exists in respect of such claim. Under the circumstances it is apparent that the supply of water remaining is, with operation of the Ontario Power Company Works, inadequate for the purposes of the full proposed development of the Chippawa Power Canal. It will be of advantage, therefore, to obtain an amendment to the Treaty so that an additional supply of water may become available for such works. The Commission states that of the 13,500 feet of water now employed by the Ontario Power Company it intends to divert 3,500 feet to the Chippawa Canal and that such water, with the surplus water above mentioned and 1,000 to 1,400 feet to be obtained from the spillway of the Welland Canal will be available to produce upwards of 275,000 horsepower from the initial development at Chippawa Works and leave water sufficient at the Ontario Power Company Works to permit of the production of \$150,000 horse-power there. With a greater fall in the height of water at the Chippawa Works it is estimated that approximately double the amount of power can be recovered from water diverted there and discharged at Queenston as compared with the same quantity of water discharged at the Ontario Power Company Works. Any loss sustained by the Ontario Power Company by reason of diversion from its works of a portion of its water supply can under such conditions properly be measured against the value of additional power recovered therefrom at Chippawa.

Financial statements covering the accounts of the Niagara System:

(a) For the period between 1st November, 1911, and 31st October, 1917, and

(b) For the fiscal year ending 31st October, 1918.

are in the hands of the Honourable Peter Smith, Treasurer of the Province; and those for the fiscal year ending October 31st, 1919—and in detail—are complete and will be delivered to him within the next few days. For the greater portion of the period up to 31st October, 1917, the System was in a state of initial development, but the progress made was substantial and, in my opinion, satisfactory.

For the fiscal year ending 31st October, 1918, the accounts of the System showed even better progress than for the preceding period, but some difficulties were met with in determining the exact results of the operations of the Ontario Power Company (which has been purchased as of date 1st August, 1917,) and the costs to be charged for power delivered to the Niagara System in that year were dependent to some extent on these results. In the accounts of the Ontario Power Company there was uncertainty as to the amounts which had to be set aside, as operating costs, to meet provisions for the renewal of plant and equipment and also as to the prices which the Power Company would be required to pay for power purchased by it in the year from the Toronto Power Company. These items were disposed of in the financial statement of the Ontario Power Company to 31st October, 1918, by the making of an interim allowance for renewals of plant and equipment until such time as information permitting correct calculation could be obtained; the prices to be paid to the Toronto Power Company for power being the subject matter of dispute and litigation allowances were included to cover them in amounts which the Commission believed to be amply sufficient to provide for all probable contingencies; on these bases the income of the Power Company appeared sufficient for the period between 1st August, 1917 and 31st October, 1918, to meet all operating costs to the Company and interest charges to the Commission, and to provide a surplus for sinking fund purposes. Accordingly the contract price of \$9 per horse-power and \$12 for other power, was charged to the Niagara System in respect of the power supplied to it by the Ontario Power Company in the year.

It is now possible to calculate with reasonable accuracy, what sums must be set aside annually to provide fully for renewals to plant and equipment of the Power Company, and with a recent settlement of litigation the price which must be paid for certain of the power purchased by the Company up to 31st October, 1918, can also be accurately ascertained; litigation still prevails, however, in respect of the price to be paid by the Company for other power taken in the same period. Adjusted to meet the now known facts as to costs for the period the accounts of the Power Company to 31st October, 1918, show that its income—after the charging of full provisions for renewals of plant and equipment—was deficient by upwards of from \$230,000 to \$370,000 (dependent upon how the litigation still in force shall be determined) to meet the costs of operating and interest and sinking fund on the purchase price of about \$8,000,000 paid by the Commission for the Power Company, and if these amounts have to be provided, as the Power

Commission Act appears to demand, it will mean that they must be assessed as an additional cost of power over the prices already charged to the municipalities on the Niagara System for the period to 31st October, 1918.

The accounts of the Ontario Power Company for the fiscal year ending 31st October, 1919, will also show a deficit of between \$255,000 and \$335,000 (dependent upon how litigation still in force shall be determined) if full provision for renewals of plant and equipment be made and interest on the investment of the Commission and sinking fund to repay the same be taken into account; and if either of such amounts has to be provided it must be added to the cost of power supplied to the municipalities on the Niagara System in that period.

In addition, if the third pipe line to the works of the Ontario Power Company shall be removed within any short period of years, a still further and possibly substantial charge may require to be added to the costs of power in 1919 in order to meet the proportion of loss which would be chargeable to that year.

It is clearly apparent that the conditions under which the Ontario Power Company operated in the period to 31st October, 1919, were entirely abnormal and such are not likely to be again encountered. Under such circumstances and in view of the facts that —

(a) The Company must under a recent settlement of litigation and a judgment of Court—presently in appeal—pay prices for power purchased in the period which are greatly in excess of those which it charged for such power;

(b) War conditions were in force during part of the period, when the power so sold is said to have been employed largely for munition purposes;

(c) Provisions for renewal of equipment and plant (while absolutely necessary if the Ontario Power Company is to operate on a sound basis) do not represent actual cash outlays in the period;

(d) Sinking fund requirements, while part of the cost of power under the Power Commission Act, are in reality a capital repayment; and

(e) The third pipe line was installed to meet a pressing demand for power said to have arisen largely by reason of war conditions; I am firmly of the opinion that the interests of the Province and the municipalities will best be served by permitting the Company to forego charging provisions for renewal of plant and equipment as part of the cost of power delivered by the Ontario Power Company to the Niagara System in the period between 1st August, 1917, and 31st October, 1919. In addition, I believe it is essential that some basis shall be arrived at which will protect the Power Company in its investment in the third pipe line to its work so that it may avoid loss of any substantial portion of the same and be allowed to repay the cost over an extended period of years. If this can be done the income of the Ontario Power Company to 31st October, 1919, will have been all but sufficient to meet other requirements without any increased charge for power to the municipalities.

Prepared upon the basis that—

(a) The prices payable by the Niagara System to the Ontario Power Company shall be allowed to remain at \$9 and \$12 per horse-power for power delivered at Niagara Falls in the fiscal year ending 31st October, 1919, and

(b) The cost of the third pipe line to its works shall be repaid by the Ontario Power Company over an extended period of years, the results of operations of the Niagara System for the fiscal year ending 31st October, 1919, will be found to be satisfactory, from a financial standpoint, to a number of the municipalities and probably disappointing to others, including some of the most important of them. Rates paid by a number of the municipalities have been sufficient for the year to meet the full costs of power supplied to them and to provide a surplus; on the other hand shortage of power with higher expenses have so increased costs to others that the rates paid by them were insufficient to meet the same. Included in those which paid prices in excess of costs were:

*Sarnia, over paid to the extent of	\$10,929	(no sinking fund yet charged)	
New Toronto	do	10,707	do do
Walkerville,	do	9,356	do do
Windsor	do	8,816	do do
London,	do	5,568	(after sinking fund was charged)



Chatham,	do	5,362	(no sinking fund charged yet)
Tillsonburg,	do	3,222	(after sinking fund was charged)
Wallaceburg,	do	3,163	(no sinking fund yet charged)
Weston,	do	3,015	(after sinking fund was charged)

while of those which underpaid are:

Toronto, to the extent of.....	\$106,854	(after sinking fund is charged)
Hamilton, do .....	23,518	do do
London & Port Stanley Railway		
Commission, to the extent of	13,331	(no sinking fund yet charged)
Dundas, do .....	4,558	(after sinking fund is charged)
Dunnville, do .....	3,690	(no sinking fund yet charged)
Galt, do .....	1,988	(after sinking fund is charged)
Preston, do .....	2,078	do do
Watford, do .....	1,673	(no sinking fund yet charged)
Harriston, do .....	1,046	do do

\*Sinking fund is not chargeable until a municipal commission has been operating for 5 years.

An adequate supply of power available for distribution would, if the cost of it to the Commission shall not increase to an important extent, go a long way to remedy these conditions and serve to reduce costs to the municipalities. Arrangements are said to have been made for some increase in the supply of power, but until the amount distributed by the System shall increase to a substantial extent, it is possible that rates paid by some of the larger municipalities may require to be increased.

Sinking fund requirements are charged in the cost of power to all municipalities on the Niagara System where their municipal commissions have been in operation for a period of five years or more, and the state of the account of each municipality with the Commission will be fully set out in the accounts of the System to 31st October, 1919, which are shortly to be delivered to the Government.

Having regard to the above conditions it is my opinion that the position of the Niagara System was completely sound on the basis on which the undertaking was started, at which time the Commission purchased power at definite prices and distributed it to the municipalities, which in turn had to pay the costs of the same. The purchase of the Ontario Power Company, construction—entered upon—of the Chippawa Works, and installation of the third pipe line to the works of the Ontario Power Company, were all departures from this basis in that they have made the municipalities responsible for the costs of generation of the power supply of the System. The financial success of the Niagara System being based upon its ability to supply power to the municipalities at moderate prices, its future, therefore, is now largely dependent upon the prices which must be paid for Chippawa power when such works shall be complete and in operation. Power will be supplied to the municipalities at reasonable rates if the costs of construction and operation of the Chippawa Works shall not be excessive when compared with the amount of power which the Commission is able to generate and sell from such works. On the other hand, if the costs of construction and operation of the Chippawa Works shall prove to be excessive when compared with the amount of power which the Commission is able to develop and sell from such works, then the municipalities will have to pay such increased prices for power as will reimburse the Commission in all the costs to which it shall be put in the connection.

Until the Chippawa Works be complete and their costs of construction and operation known, such costs and the amount of power which they will generate are matters which engineers alone can estimate; the amount of power which will be sold from them is also a matter for the future to determine, although no apprehension is felt by the Commission in the connection; accordingly I am in no position at this time to make any statement to you as to what the cost of Chippawa power will be to the municipalities. The Commission is of the opinion, however, that it will be able to complete and operate the Chippawa Works so that the average cost of power at Niagara Falls will be about \$12 per horse-power, and if such shall be the case it should be satisfactory to the municipalities. An adequate supply of power at even higher prices

will, in my opinion, be of advantage to the municipalities when compared with the present high cost of steam power.

## 2. *Severn System.*

The investment of the Commission in the Severn System which develops and supplies power to 17 municipalities adjacent to and including Midland, Penetang and Collingwood, amounted to \$1,349,000 on October 31st, 1919.

The income of the System for the fiscal year ending October 31st, 1918, was \$158,819, while the costs of operation of the System for the same period—and including \$3,758 charged on sinking fund account—were \$147,832. The net surplus for the year, was, therefore, \$10,986, attributable to over-payments for power by certain municipalities to the extent of \$17,358, as against which certain other of the municipalities underpaid for power in the amount of \$6,372.

For the fiscal year ending October 31st, 1919, the income of the System amounted to \$158,965, while the expenditures including \$12,716 for sinking fund amounted to \$203,392, the underpayments of \$44,426 being attributable to the fact that the prices paid for power by all of the municipalities were, with increased expenses of operating, insufficient to reimburse the Commission in the cost of the same.

In my opinion the financial position of the System is sound in that if increased costs of operating continue they can be met by an addition to the prices charged for power.

## 3. *St. Lawrence System.*

The St. Lawrence System purchases power and supplies it to 5 municipalities, including Brockville, Prescott, Chesterville, Williamsburg and Winchester, and the investment of the Commission in it to October 31st, 1919, was \$513,666.

The income of the System for the year to October 31st, 1918, was \$22,666, as against which costs of operation—excluding any charges for sinking fund—amounted to \$27,744. The excess of expenditures over receipts of \$5,077 was attributable to the fact that 4 municipalities underpaid for power to the extent of \$5,436, while 1 municipality overpaid by \$359.

For the fiscal year ending October 31st, 1919, the income of the System was \$49,049, while the costs of operation—excluding any charges for sinking fund—amounted to \$55,128, leaving an excess of expenditures over receipts of approximately \$6,079; this was attributable to underpayments for power to the extent of \$5,288 by 4 of the municipalities, and overpayments of \$324 by 1 municipality; in addition \$1,115 loss was made on the supply of power to certain private customers.

To October 31st, 1919, the System as a whole was in arrears in respect of amounts owing to the Commission for power to the extent of about \$27,130. Sinking fund payments stood deferred, under the Act, for the reason that none of the municipal commissions had been operating for a full period of five years.

The System has suffered from the fact that it has had an inadequate supply of power, and because the amount of power distributed to the municipalities has been insufficient to reduce expenses to a reasonable basis. The Commission has made an arrangement for an increased supply of power and during the last fiscal year expended approximately \$160,000 on extensions, partly for the purpose of obtaining new customers. The extended supply and sale of power will undoubtedly improve the position of certain of the municipalities but underpayment of costs will probably continue with others unless their present rates of consumption of power shall be increased or the rates charged to them for power shall be raised.

## 4. *Wasdell System.*

The Wasdell System develops and supplies power to the municipalities of Beaverton, Cannington, Sunderland, Brechin and Woodville, and the investment of the Commission in it to October 31st, 1919, was \$273,464.

For the fiscal year ending October 31st, 1918, the income of the System was \$20,107, including \$9,125 paid by the Severn System for power supplied to it. The expenses of the System for the same period were \$29,100—exclusive of any provisions for sinking fund—and the excess of expenditures over receipts of \$8,993 was attributable to the fact that none of the 5 municipalities on the System paid the complete cost of power supplied to them.

For the fiscal year ending October 31st, 1919, the income of the System was \$29,234, including \$15,509 paid to it for power taken by the Severn System; expenditures in the same



period amounted to \$31,724—exclusive of any provisions for sinking fund—and the excess of expenditures over receipts of \$2,490 was attributable to the fact that none of the municipalities on the System paid the full cost of power to the Commission.

To October 31st, 1919, the 5 municipalities, comprising the System, were indebted to the Commission to the extent of \$39,231 in respect of underpayments for power supplied to them during the period of operation of the System. Sinking fund payments stood deferred under the Act for the reason that none of the municipal commissions had been in operation for the full period of five years.

The amount of power taken by the municipalities on the System has been inadequate, as compared with the investment of the Commission in it, to reduce costs and to allow the System to furnish power at the prices expected. Relief has, however, been given to the System through power taken and paid for by the Severn System. If the amount of power taken by the Severn System shall be increased it will help to overcome underpayments by the municipalities, but it is probable that the prices paid for power by the municipalities will require to be raised over the rates now charged if the System is to make good the amount due to the Commission and be put on a proper financial footing.

#### 5. *Eugenia System.*

The Eugenia System develops and supplies power to 18 municipalities in the vicinity of and including Chesley, Mount Forest and Orangeville. The investment of the Commission in the System amounted to \$1,664,500 on October 31st, 1919.

For the fiscal year ending October 31st, 1918, the income of the System from the municipalities was \$77,854, while in addition, \$48,387 was paid to it by private companies and the Severn System for power supplied to them—the total income being \$126,241. Expenditures for the period amounted to \$117,147—exclusive of any provision for sinking fund—and the surplus of \$9,094 was attributable to overpayments for power by certain municipalities to the amount of \$15,059 and underpayments by others to the amount of \$5,965.

For the fiscal year ending October 31st, 1919, the income of the System was \$132,697, including \$84,858 collected from municipalities and \$47,839 paid to the System by certain companies and the Severn System for power supplied to them. Expenditures in the period amounted to \$141,156, exclusive of any provisions for sinking fund—and the excess of expenditures over receipts of \$8,459 was attributable to the fact that 15 municipalities underpaid for power in the year by \$13,276, while 3 municipalities overpaid by \$4,817.

To October 31st, 1919, 15 municipalities were indebted to the Commission in \$49,755 for power supplied to them and not completely paid for, while the accumulated amount to the credit of 3 other municipalities for amounts paid to the Commission in excess of the cost of power was \$15,032. Sinking fund payments stood deferred under the Act for the reason that none of the municipal commissions had been in operation for the full period of five years.

In my opinion the System is on a sound financial basis, but with recent increased costs of operating and in order to wipe out deficits the rates charged to certain of the municipalities will require to be increased.

#### 6. *Ottawa System.*

The investment of the Commission in the Ottawa System is very slight, being \$1,009, and the System buys and sells power to the local Hydro-Electric Commission at exact cost.

#### 7. *Muskoka System.*

The Muskoka System generates and supplies power to the Towns of Huntsville and Gravenhurst, and the investment of the Commission in it to October 31st, 1919, was \$203,137.

The income of the System for the fiscal year ending October 31st, 1918, was \$19,118, as against which the costs of operating—without inclusion of any provision for sinking fund—were \$23,798, the excess of expenditures over receipts of \$4,680 being attributable to the fact that neither of the municipalities taking power paid the full costs of the same.

For the fiscal year ending October 31st, 1919, the income of the System was \$24,654, while expenditures—without inclusion of any provision for sinking fund—amounted to \$27,123, the excess of expenditures of \$2,469 being attributable to the fact that neither of the municipalities paid the full cost of power to the Commission.

To October 31st, 1919, the two municipalities were indebted to the Commission in \$11,680, in respect of accumulated underpayments for power. Sinking fund payments stood deferred under the Act as neither of the municipal commissions had been in operation for the full period of five years.

Inasmuch as the municipalities are fully responsible for the costs of power and to meet the debt of \$11,680 due by them to the Commission, there is no reason to question the financial position of the System. On the other hand, unless the consumption of power shall be largely extended an increase will require to be made in the rates now being charged the municipalities for power.

#### 8. Rideau System.

The Rideau System commenced operations about November 1st, 1918, and it generates and supplies power to Smith's Falls, Perth and Carleton Place; the investment of the Commission in it to October 31st, 1919, was \$681,467, of which approximately \$530,000 was expended during the last fiscal year.

The income of the System to October 31st, 1919, amounted to \$29,623, while expenditures—without inclusion of any provisions for sinking fund—were \$27,351, the surplus of \$2,272 being attributable to the fact that two of the municipalities paid \$3,991 in excess of the cost to them of power, while one underpaid to the extent of \$1,719.

The Rideau System has been in operation for one year only.

#### 9. Thunder Bay System.

This is a System which at present buys power and sells it to the City of Port Arthur, and to October 31st, 1918, the investment of the Commission in it was \$127,299.

For the fiscal year ending October 31st, 1918, the income of the System from the City of Port Arthur was \$82,753, as against which expenses—including \$1,972 provision for sinking fund—were \$77,550. The amounts paid to the Commission in the year were, therefore, \$5,203 in excess of the cost of power.

In the fiscal year ending October 31st, 1919, the income of the System amounted to \$96,374 as against which expenditures—including \$2,116 for sinking fund purposes—were \$88,420, the surplus being \$7,950, attributable to overpayments by the City of Port Arthur for power.

To October 31st, 1919, the City of Port Arthur had met all annual provisions for sinking fund and also overpaid the Commission for power to the extent of \$17,622.

During 1919 construction was started by the Commission of a power development on the Nipigon River for a supply of power to the municipalities of Port Arthur and Fort William and to other customers with whom contracts have yet to be concluded. The cost of this development will, as estimated by the Commission's Engineers, be between \$4,000,000 and \$5,000,000, of which approximately \$1,000,000 has been expended to date. The Commission is engaged in negotiations looking to the sale to pulp mills and paper companies of a large portion of the power to be generated by the development and the future of the System is dependent to a great degree upon its ability to dispose of such power at adequate prices.

#### 10. Essex System.

The Essex System was purchased by the Commission on June 1st, 1918, under the provision of section 8, subsection "A," of the Power Commission Act, which permits the Commission, with the approval of the Lieutenant-Governor in Council, to acquire by purchase, lease or otherwise, works, machinery and plant of any person owning, holding or operating the same for generating electrical power or energy, or for the transmission thereof in Ontario. The price paid for the undertaking was \$226,000 in debentures of the Commission guaranteed by the Province of Ontario.

The Essex System buys power from the Niagara System and distributes and sells it largely to private and other customers—not municipalities—in Leamington, Kingsville, Essex, Harrow, Amherstburg, Kinnear River and Cottam, all in the County of Essex. The position of the Essex System is entirely different from that of any other system in that it is owned by the Commission, and no municipalities or any customers are under the responsibility for the results of operation, or to repay the cost of the System. It is stated that the Commission intends to put the System upon a Hydro municipal basis, but so far this has not been done.



In the period between June 1st, 1918, and October 31st, 1919, the Commission expended \$147,721 upon the System, increasing its investment in it to \$373,721 as of October 31, 1919.

For the five months to October 31st, 1918, the income of the System was \$17,813, while expenditures amounted—with inclusion of \$1,779 as provision for sinking fund and a high cost for steam generated power—to \$30,500. This left an operating deficit of \$12,687.

For the fiscal year ending October 31st, 1919, the income of the System from sales of power and profits on sales of supplies, amounted to about \$56,677, as against which expenditures—with \$4,269 provided for sinking fund—amounted to \$75,726; this left a deficiency for the period of \$10,049.

To October 31st, 1919, the System was indebted to the Commission in approximately \$31,737 for the excess of costs of operation over income, and no municipalities or customers are responsible for repayment of the same. Of this amount the Commission has evidently looked to lose some portion, in the expectation that the System would later get upon its feet and repay it.

The position of the Essex System is, in my opinion, unsatisfactory from the standpoint of the Province in that it is at present being operated at the risk of the Province.

#### 11. *Thorold System.*

The Thorold System is a system of lines over which power is transmitted by the Niagara System to customers of what was formerly known as the "Battle" System, in the vicinity of Thorold.

The Thorold System was purchased on December 1st, 1918, at a price of \$100,000 paid in four per cent. forty year bonds of the Commission, guaranteed by the Province. The lines purchased are said to have a physical value of about \$27,500; approximately \$57,500 was paid as the then present value of commissions which will become due by the Ontario Power Company on contracts for the supply of power to customers in the Thorold district, about \$15,000 was paid as the value of future profits on certain existing contracts with sundry customers for power and as the value of unsold power to which the System was entitled under contracts with the Ontario Power Company.

For the period of eleven months to October 31st, 1919, and after provision of \$1,758 on sinking fund account, the operation of the System returned a surplus of \$4,392, a part or the whole of which must be applied in the reduction of the purchase price paid for the System.

#### 12. *Monteith System.*

The Monteith System owns a power development on the Driftwood River, Temiskaming District and a distribution system in the Village of Monteith, the construction of which was undertaken by the Commission under instructions from the Department of Agriculture for the Province of Ontario and for the purposes of Soldiers' Re-establishment. No contract has as yet been signed between the Department and the Commission, but it is stated that the Department is to operate the plant and distribution system and make payment to the Commission annually of such amounts as will be sufficient to meet interest and form a sinking fund to repay capital cost within thirty years. The investment of the Commission in the System to October 31st, 1919, was \$23,753. The Department of Agriculture has to this point paid the costs of operation of the Monteith System, but is indebted to the Commission in \$3,405 in respect of sinking fund provisions and interest for the period up to October 31st, 1919.

#### 13. *Ontario Power Company, and its subsidiary, The Ontario Transmission Company, Limited.*

The Ontario Power Company owns an Hydraulic Power Development plant at Niagara Falls, Ontario, with transmission and other lines necessary thereto, and the rated capacity of the plant at the date of purchase of the Company by the Commission as on 1st August, 1917, was about 160,000 horse-power.

As of such date the Ontario Power Company had the following securities outstanding:

Capital Stock .....	\$10,000,000
1st Mortgage 5% Gold Bonds, due 1st February, 1943.....	9,826,000
2nd Mortgage 6% Debentures, due 1st July, 1921 .....	2,841,700

while the Ontario Transmission Company, Limited (the whole of whose capital stock is owned by the Ontario Power Company), had these securities outstanding, namely:

Capital Stock .....	\$1,000,000
1st Mortgage 5% Gold Bonds, due 1st May, 1945 .....	1,769,000

The mortgage indebtedness of the two companies at the time of purchase was, therefore, \$14,436,700.

The price paid by the Commission for the capital stock of the Ontario Power Company was 80 per cent. of the par value of such stock in 40 year 4 per cent. bonds of the Commission, guaranteed by the Province, and the amount of such bonds now outstanding is \$7,994,900; for these the Commission has obtained \$9,993,700 of capital stock of the Power Company. There is in the hands of the public, therefore, not more than \$6,300 par value of the capital stock in the Ontario Power Company.

Under the provisions of section 22 and 23 of the Power Commission Act the municipalities on the Niagara System are, as I am advised, responsible for the costs of operation of the Ontario Power Company and to repay the investment of the Commission in the shares of the Company.

At the date of purchase by the Commission, the Ontario Power Company had three contracts with the Toronto Power Company for the supply of power to it; one of these contracts expired on 5th September, 1917, the second expired on 1st November, 1917, and the third continues in force until 5th October, 1920. With the expiry of the second contract the Toronto Power Company was ordered by the Dominion Power Controller to continue a supply of power—equal in amount to that required by the contract—to the Ontario Power Company. The Ontario Power Company sold the power supplied by the Toronto Power Company on the assumption that it would be required to pay about \$13 per horse power for it, but later on disputes and litigation arose between the Toronto Power Company and the Ontario Power Company with respect to the prices to be paid. In the settlement of one dispute and under a judgment of Court, now in appeal, with respect to another, the Ontario Power Company may be required to pay between \$425,000 and \$450,000 more than the amount which it expected for power so sold up to 31st October, 1919.

As a result of these conditions the income of the Ontario Power Company for the period up to 31st October 1919, was insufficient—if full provisions for the renewal of plant and equipment be included—to meet all operating expenses, and pay about \$400,000 per annum, being interest and sinking fund on the investment of the Commission. If such deficits have to be made good in the periods in which they occurred, then the municipalities on the Niagara System will require to be assessed further for the cost of power in the fiscal years 1918 and 1919. These conditions are fully dealt with in my report on the Niagara System and I have recommended that provisions for renewal of plant and equipment shall be waived for the periods, in which event an increase in the price of power to the municipalities—and for such periods—will not be necessary.

In 1918 the Commission commenced the construction of a third pipe line to the works of the Ontario Power Company for the purpose of obtaining an additional supply of 50,000 horse-power, and it was estimated that the cost of such pipe line, together with the necessary electrical equipment, would be between \$1,500,000 and \$2,000,000, and further that the amounts recovered from sale of such power, with indemnities looked to be received from the Dominion Government, would be sufficient before the spring of 1923 to repay, largely, if not wholly, the cost of the pipe line. The Ontario Power Company accordingly signed a contract in which it agrees to remove the pipe line by the spring of 1923. The Commission now states that the Queen Victoria Niagara Falls Park Commission has agreed to allow the pipe line to remain for as long a period as it shall be required by the Power Company if certain improvements be made. The pipe line and necessary electrical equipment have cost \$3,510,000, and coming into operation in about June, 1919, it is probable that the Ontario Power Company will not likely be able to remove the pipe line within any limited period of years except at a loss, and if this loss has to be measured against the cost of power produced between June, 1919, and any date of removal, within a limited period, it would mean an addition—greater or less as the case may be—to the cost of power. It is impossible at this date to determine what such a loss or the consequent addition to the cost of power would be. Under these circumstances it seems to me to be very necessary that the Ontario Power Company shall be protected in its investment in the pipe line and that the line be allowed to remain permanently as a part of its works; also that the Company be allowed to repay the cost of the same over an extended period of years. Indications are that the



amount of water presently available will not be sufficient to operate the works of the Ontario Power Company to full present capacity and at the same time operate the Chippawa works to the full extent of the ultimate development proposed. The Commission accordingly proposes to divert 3,500 second feet of water from the Ontario Power Company works, and this, with other water said to be available, will, in its opinion, be sufficient to produce 275,000 horse-power from the initial development at Chippawa. With a greater fall in the height of water at the Chippawa works it is estimated that approximately double the amount of power can be obtained from water diverted there and discharged at Queenston as compared with the same quantity of water discharged at the Ontario Power Company works. Accordingly any loss met by the Ontario Power Company by reason of diversion of any part of its water supply can under such conditions be properly measured against the value of additional power recovered therefrom at Chippawa.

On 1st July, 1921, approximately \$2,700,000 of second mortgage bonds of the Ontario Power Company will mature, when they will require to be provided for—in all probability by the Province. The annual sinking fund payments of \$225,000 per annum above mentioned, are the amounts which are required to be paid under existing mortgage agreements, but such sums will be inadequate to repay the outstanding indebtedness of the Companies at maturity of the bonds.

#### 14. *Bonnechere Water Storage System.*

This is a small water storage system near the Town of Renfrew which has cost about \$31,000, and the Commission is entitled under the Act to charge such rates for water taken from it by consumers as will pay costs of operating, interest and sinking fund. With difficulties met with in obtaining payment of such rates the position of the System cannot be described as wholly satisfactory.

#### 15. *Central Ontario System.*

Under an agreement dated 10th March, 1916, and made between the Electric Power Company, Limited, and the Province of Ontario, the Government purchased the undertaking known as the Central Ontario System, for the sum of \$8,350,000, payable in debentures of the Province maturing 1st March, 1926, and bearing interest at the rate of 4 per cent per annum. Later by Order-in-Council dated 5th May, 1916, administration and management of the System was vested in the Hydro-Electric Power Commission of Ontario.

The Central Ontario System is divided into two sections. One is known as the Central Ontario section, which controls and generates power at several points on the Trent River, transmits such power over lines which it owns and distributes it to local public utility plants—also owned by the System—in a number of municipalities including Belleville, Brighton, Cobourg, Deseronto, Lindsay, Napanee, Oshawa, Port Hope, Peterboro, Trenton and Tweed; it also sells power to a number of other municipalities and customers. The System owns gas works at Cobourg, Napanee and Peterboro; water works at Cobourg and Trenton (since sold), and the Peterboro Street Railway. In addition, it operates a pulp mill at Campbellford and owns the Bruton Township timber limits purchased by the Province to provide a supply of wood for the pulp mill.

The Northern Ontario Section has a power development at Nipissing, near North Bay, and supplies power to local public utility undertakings owned by the System in North Bay, Powassan, Nipissing and Callander.

Prior to purchase of the undertaking by the Province, and in 1914, the physical assets of the System were appraised by Engineers of the Commission and upon the basis of such appraisal the value of such physical assets at the time of purchase was set at \$5,672,658, and the remainder of the purchase price, \$2,677,342, was allocated as the price paid for water rights, franchises and other assets of an intangible and non-income returning nature.

The results of operation of the System have not to this point been very encouraging, but on the contrary, after making full provision for the renewal of works and payment of interest at 4 per cent. per annum on the purchase price—and at current rates on further advances—but without any allowance for repayment of the investment or advances of the Province:

(a) Interest costs and expenses of operation exceeded the income of the System to October 31st, 1917, by \$24,218.75;

- (b) Income exceeded interest costs and expenses of operation of the System for the fiscal year ending October 31st, 1918, by \$16,500; and
- (c) Interest costs and expenses of operation exceeded the income of the System for the fiscal year ending October 31st, 1919, by \$183,632.

These results were attributable in part to the fact that interest to the amount of approximately \$107,000 per annum has had to be paid on the purchase price of intangible and non-income bearing assets.

The Gas and Water Works and the Peterboro Street Railway have consistently shown losses and in 1918 and 1919 operations in the Pulp mill also produced deficits, but at present the Pulp mill is said to be producing substantial profits. With the interest charges in respect of water power rights and intangible assets, to a large extent assumed by the Power Department, the prices allowed to it, for power generated, have for the most part been insufficient to meet costs—on the other hand the electrical utilities, supplied with power at such prices, have in most cases shown profits.

With the completion of the Ranney's Falls development—now contemplated to be constructed—and an increased amount of power made available to meet demands, the Commission believes that these conditions will be much improved.

In 1926 \$8,350,000 debentures, given by the Province as the purchase price of the undertaking, will mature. At that time costs chargeable annually against the System will increase if a rate of interest higher than 4 per cent. per annum has to be paid with their renewal.

Since the date of purchase the Province has advanced \$2,893,185 to the System in cash, but of this amount the Hydro-Electric Commission has borrowed \$1,209,787 for the purposes of other Systems. In addition, there are outstanding debentures of the Province in the amount of \$225,000 given on account of the purchase of the Bruton Township timber limit which was acquired for the supply of the Pulp mill.

On the whole I regard the present position of the Central Ontario System as unsatisfactory from the standpoint of the Province, and would advise, when it be found possible to do so, and in a manner fair and equitable to the Province and the municipalities, that it be put upon a Hydro Municipal basis. As their operation is also entirely foreign to an undertaking of the character of the Central Ontario System, it is my opinion that the Pulp mill and Bruton Township timber limit should be disposed of at the first favourable opportunity. Steps to this end are, I understand, now being taken.

#### 16. *Ontario Niagara Development Works (Chippawa Power Canal.)*

The position of these works is dealt with in my report upon the Niagara System. The works are in course of construction and estimates of Engineers of the Commission are alone available to indicate what their costs of construction, or the cost of power when delivered from them, will be. Accordingly I can, as Auditor, make no statement upon the subject. Expenditures to date upon the Canal amount to about \$18,500,000.

#### 17. *Hydro-Electric Railway Lines.*

Under the provisions of the Hydro-Electric Railway Act, 1914, and amendments thereto, the Commission is authorized to enter upon the construction or purchase and operation of electric railway lines when and so soon as

(a) The Lieutenant-Governor in Council shall have authorized the municipalities interested to enter into agreements with the Commission for the construction and operation of any electric railway line; and

(b) The municipalities interested shall, in respect of any proposed line, have signed agreements containing terms and conditions laid down by the Act, including the assumption on their part of liability for the costs of construction and operation of such a line in proportions agreed upon.

Under section 6 of the Act it is provided that the Commission may raise money for the construction and equipment of such a railway line by the issue of bonds secured upon the railway and all assets belonging thereto, and further, that it may from time to time increase the amount of the bonds so to be issued by any amount which it deems necessary to cover the costs of construction and equipment or to provide for extensions or improvements to the line.



Under section 7 of the Act it is provided that neither the Province nor the Commission shall be liable for the payment of the bonds to be issued by the Commission except to the extent of the moneys which shall be received in connection with the operation of the railway line or from the sale of debentures to be deposited with the Commission by the municipalities. Under section 8 of the Act, however, it is provided that the Lieutenant-Governor in Council may authorize the Treasurer of the Province of Ontario to guarantee the payment of the bonds issued by the Commission. There is almost a certainty that the bonds so to be issued in respect of any radial line cannot be sold by the Commission to advantage without the guarantee of the Province.

The municipalities on their part are required to deposit debentures to the amount of their respective shares of the costs of construction and equipment of the railway line with the Commission and these debentures are to be held by the Commission as collateral security for the bonds issued by it, subject to the right on its part to sell or dispose of so much of them as may be necessary at any time to meet the payment of any amounts due by a municipality in default.

The agreements with the municipalities are very rigid in character in that the responsibilities assumed by each municipality are based upon the costs of construction and operation of a line, the exact location and character of which is definitely laid down in each agreement. Legal opinion is that there is doubt as to whether the obligations assumed by any municipality can be enforced in the event that a line shall be constructed and operated for a portion only of the distance prescribed in the agreement to which such municipality is a party; this is particularly the case if the portion constructed becomes a defined part of a new system comprised of the part of one system and the part or the whole of another system, leaving any part of either of the original systems unconstructed.

The Commission has in contemplation the construction or purchase and operation of these lines, namely:

- (a) The Port Credit to St. Catharines Line, to run between the Village of Port Credit and the City of St. Catharines.
- (b) The Toronto to Port Credit to London line to run between the City of Toronto to the Village of Port Credit and the City of London.
- (c) The Toronto and Eastern line, to run from the City of Toronto to the Town of Bowmanville.

Necessary agreements have been executed with the municipalities in respect of the Port Credit to St. Catharines line, and such agreements have been approved of by the Lieutenant-Governor in Council. Agreements have been voted upon by the municipalities interested in the Toronto to Port Credit to London line, but the same have to be signed, I am informed, by the municipalities between Toronto and Port Credit only. Agreements with the municipalities in respect of the Toronto Eastern line have been executed and the approval of the Lieutenant-Governor in Council thereto has been obtained.

Costs of construction and purchase of the Port Credit to St. Catharines line are estimated by Engineers of the Commission at \$11,000,000, which amount it is proposed to raise when and as required by sale of bonds of the Commission. Certain of these bonds have already been guaranteed by the Province and are in the hands of the Commission. The Commission has entered upon certain obligations in connection with the acquisition of right of way and for supplies and materials, and these obligations amount to upwards of between \$250,000 and \$300,000.

In order to provide for connection of the Port Credit to St. Catharines line with the City of Toronto, the Commission has made expenditures and incurred liabilities to the amount of upwards of \$650,000, and it states that these expenditures have been made as part of the costs of construction and purchase of the proposed Toronto to Port Credit to London line, in respect of which it intends to apply for legislation authorizing it to construct and operate the same in two divisions to be located between Toronto and Port Credit and Port Credit and London. Agreements have been executed by the municipalities between Toronto and Port Credit but not by those between Port Credit and London; accordingly the terms of the Hydro-Electric Railway Act have not as yet been complied with in respect of the Toronto to Port Credit to London line as voted on by the municipalities. The Commission states that it received assurances from Sir

William Hearst, when Premier of Ontario, that if it would obtain resolutions by the municipalities interested requesting the Government to introduce and pass amendments to existing legislation that may be necessary to validate the building of the Toronto to Port Credit section as a part of the Toronto to St. Catharines Hydro-Electric Railway (so as to make the same legal, valid and binding upon the municipalities), that the Government would with the presentation to it of such resolutions support legislation to that effect. In such event Sir William Hearst is said to have expressed the opinion that no difficulty would be met with in carrying out the wishes of the Commission to have the bonds necessary for the construction and equipment of such line guaranteed by the Province. On the basis of these assurances, therefore, and with resolutions by the municipalities in its possession, the Commission, although without statutory authority to do so, has felt justified in making expenditures amounting to \$550,000 out of the funds held by it under the terms of The Power Commission Act, in the belief that by so doing it would make a considerable saving in the cost of the Toronto to Port Credit line. Engineers of the Commission estimate that the cost of construction of the Toronto to Port Credit line will be upwards of \$5,000,000 to \$6,000,000.

Estimates of the Engineers of the Commission indicate that the cost of construction of the Toronto and Eastern line will be about \$9,000,000, to be raised as and when required by sale or issue of bonds of the Commission guaranteed by the Province. The approval of the Lieutenant-Governor in Council to the agreements with the municipalities has been obtained, and expenditures upon the line to this date amount to about \$10,000.

As the costs of construction or purchase and operation of the above mentioned electric railway lines are matters which engineers alone can estimate at this time, I am unable to make any further statement to you with reference to them. Engineers of the Commission are of the opinion, however, that the revenues of such lines will be sufficient to meet costs of operation.

*Moneys necessary to be provided by the Province in respect of construction under way and to meet liabilities of Commission.*

The amount of money which the Province must provide in order to meet the costs of completing works under construction by the Commission cannot be determined with accuracy until such works be completed, but statements of the Commission and estimates of its engineers indicate that in their opinion it will be approximately as follows:

Estimated costs of construction of Chippawa Works .....	\$40,000,000	
Less—expended thereupon .....	18,500,000	
		\$21,500,000
Estimated costs of construction of Nipigon Works .....	45,000,000	
Less—expended thereupon .....	1,000,000	
		34,000,000
Estimated amount to be expended on Rideau Systems .....		350,000
On other systems .....		150,000
If the same progress be made by Commission in the next two years as in recent periods, it is my opinion that expenditures, outside of those above mentioned, will require to be made of not less than .....		1,000,000

A total of .....\$26,000,000 to \$27,000,000  
and the probability is that these amounts will have to be advanced in cash by the Province within the next 18 to 24 months.

In addition to the above, \$2,700,000 of second mortgage bonds of the Ontario Power Company will mature in 1921 and they must be provided for. The Commission is indebted to its bankers in \$1,000,000—repayment of which is guaranteed by the Province—for moneys advanced to the Ontario Power Company; sales of power are expected to provide funds for repayment of this debt, but in the event that they shall not do so the Province may require to advance to meet the whole or some part of it. Should either of these amounts have to be provided by the Province—by way of cash or guarantees—the Ontario Power Company will—and is able to—pay interest and sinking fund upon the same.

In the event that the Commission shall proceed with the construction and purchase of the Hydro-Electric Railway lines hereinbefore mentioned upwards of \$25,000,000 to \$26,000,000



will, in the opinion of Engineers of the Commission, require to be paid in connection with them. The amounts will, it is contemplated, be provided when and as required—by sale or issue of bonds of the Commission guaranteed by the Province.

In your letter you state that the Government is sympathetic to the Commission and you request me to express my opinion as to whether there are any reasons why support cannot be continued and extended to the Commission with benefit to the municipalities and the Province. In reply thereto I beg to report that there is, in my opinion, every reason to justify the Government in according a full measure of support to the Commission in its efforts to develop and utilize the power resources of this Province, particularly in view of the heavy advances in the cost of coal and other fuel which have taken place in the last year or two and the further increases which appear likely to occur in the near future. In providing such support to the Commission, however, there are, in my opinion, certain conditions to which the Province must pay regard and to which the Commission and the municipalities should also give attention in their own interests.

The most pressing matter is the ability of the Province to raise funds under present conditions for its own requirements and the purpose of other developments in view and at the same time continue to extend credits to the Commission so as to permit it to enter upon projects of magnitude. At the present time the debt of the Province is about \$100,000,000, of which approximately \$40,000,000 has been advanced in cash and securities to the Commission while \$10,000,000 in cash and securities, has been paid for the purchase and use of the Central Ontario System which is owned by the Province and operated on its behalf by the Commission. The Province has, in addition, guaranteed other securities to the amount of about \$8,300,000 to permit the Commission to purchase the Ontario Power Company and certain other minor properties. Sinking funds payable by the municipalities having been deferred under the terms of the Power Commission Act for a period of five years after the date when each municipal commission first commences operating, the Province has to this point received about \$535,000 in reduction of these advances. Based upon estimates of the Commission and its Engineers upwards of \$29,000,000 will now be required from the Province in cash within the next two years to complete works in course of construction and meet maturing liabilities, while a further \$25,000,000 to \$26,000,000 may require to be provided by the sale or issue of bonds of the Commission—guaranteed by the Province—for the purposes of Hydro-Electric Railway lines. With present abnormal costs it is stated that the Commission may find it to be against the interests of the municipalities to proceed too rapidly with construction work on such Hydro-Electric Railway lines, as to do otherwise may impose serious burdens for the future. In that event the sale or issue of the \$25,000,000 to \$26,000,000 of bonds mentioned may be effected gradually and as conditions warrant. In any event, however, the total amount now in contemplation to be provided on the credit of the Province (subject to the guarantee of the municipalities) is upwards of \$55,000,000 or an amount in excess of one-half of the present debt of the Province. With such expenditures made upwards of \$105,000,000 will stand invested in Hydro-Electric enterprises and the Central Ontario System, and of this amount approximately \$65,000,000 will be represented by undertakings, the exact costs of construction and operation of which are still matters for the future to determine.

At the present time Canadian securities cannot be sold in the United States except at excessive rates, unless principal and interest be made payable there, which, of course, means that exchange would have to be paid on interest and principal payments as they fall due; the sale of new securities in England is out of the question. Accordingly, the probability is that a large proportion of the moneys now necessary for the purposes of the Commission may have to be borrowed in Canada. There can be no objection to this course if the Province is prepared to pay the rates of interest demanded. Money markets are not unlimited under present conditions, however, but they are more restricted than they have been in years. It is, therefore, necessary, so far as the Province is concerned, that it does not put too great a strain upon them if its high present grade of credit is to remain unimpaired and it is to continue able to borrow money without payment of too high a rate of interest.

Under the above conditions and if the Province is to be left in the position where it can support the Commission in a proper manner and still provide for its other requirements at

reasonable interest costs, it is essential, in my opinion, that there shall be the most complete confidence between the Government and the Commission to the end that new projects shall not be entered upon—or substantial additions—beyond those of immediate necessity—be made to existing undertakings, without a complete and frank understanding in respect to each of them. Before new projects be entered upon, also, the Government should, in fairness to the Province, the Commission and the municipalities, fully satisfy itself that they are based upon such business principles as will ensure that its guarantees are not likely to be called upon; at the same time moneys necessary for the purpose should be financed before construction of such work be commenced or their purchase undertaken.

Moneys raised by the Province for the purposes of any Department of the Government or for the Commission cannot, under the Audit Act, be paid over without a vote of the Legislature, and when so voted they are strictly limited in amount. Under the Acts regulating its powers the Commission has authority to issue bonds and the Treasurer of the Province is empowered, subject to the approval of the Lieutenant-Governor in Council, to guarantee the same, but no limitations are imposed in the Acts with respect to the aggregate amount of bonds which the Commission may issue or the Treasurer of the Province guarantee, with the approval of the Lieutenant-Governor in Council. As the liability of the Province is the same to all intents and purposes whether it raises moneys direct or guarantees bonds of any undertaking, in that it must see that payment of all borrowings or guaranteed bonds be made, it is a matter worthy to be considered as to whether the Legislature should have direct control over all the finances of the Province or the Treasurer of Ontario remain vested with authority to guarantee bonds with the approval of the Lieutenant-Governor in Council.

When the Hydro municipal scheme was first put into operation the costs of construction were, comparatively speaking moderate, and interest rates 4 per cent. per annum. Now costs of construction are nearly double what they were and difficult to estimate for any extended period of time in advance. Interest rates are also about 6 per cent. per annum, or—on a double cost—about three times as much per horse-power as before. Where purchases be effected by the issue of 4 per cent. bonds also, the difference between 4 per cent. and market rates of interest must be met by the issue of an increased amount of bonds to cover the same. If it be believed that the present costs of construction are permanent and that they will not recede in the future, then attention need not be paid to these conditions; on the other hand if it be believed that the costs of construction will be lower in the future—as is generally expected—it would seem to be the part of wisdom not to enter upon construction of any new works at the present time except those of the most pressing and immediate necessity, unless the municipalities interested are, with a full understanding of what they mean, willing to accept the burdens imposed and bear them for a period of from thirty to forty years.

Unexpected increases in costs of operation met with subsequent to the dates when adjustments of rates were made were responsible to a considerable degree for under-payments for power by many of the municipalities in the fiscal year ending October 31st, 1919. Under these circumstances I attach but little importance to many of such under-payments which can readily be made good by increases in rates. It is apparent, however, that higher rates must now be paid by many of the municipalities, but with their payment most substantial advantages will still remain to the municipalities if such rates be compared with the present extremely high costs of steam generated power.

With due regard to the above conditions I can see no reason why full support of the Commission should not be continued by the Province.

Respectfully,

G. C. CLARKSON, F.C.A.,

of Clarkson, Gordon & Dilworth,

Chartered Accountants, Toronto.



## APPENDIX 12

(Signed) — "R.F.S."

" — "A.F.M."

" — "W.A.A."

" — "C.H.M."

DETAILED DESCRIPTION OF HYDRO RADIAL PROJECT. PREPARED BY  
HYDRO POWER COMMISSION.

## "TORONTO EASTERN:

The line commences at Bowmanville and extends westerly through the Township of Darlington, through Oshawa and Whitby to Pickering. On this portion the original grading was done by the Toronto Eastern Railway giving a steel road as far west as Whitby. The grading, however, was completed to Pickering, but the steel was never laid on this latter portion extending west of Whitby. The location adopted by the Commission from Pickering westerly parallels in a general way the Kingston Road to the Grand Trunk Crossing of the Kingston Road at Lot 13, Scarborough Township, and is located about midway between the original location projected of the Toronto Eastern and the Kingston Road, this location being considered more favorable than that projected by the original company. From the crossing with the Kingston Road the line extends westerly roughly paralleling the Grand Trunk and located a short distance north to the crossing of the branch line from Scarborough Junction to Markham and Stouffville. The line then diverges slightly roughly paralleling St. Clair Ave. to a crossing with the east branch of the Don River, thence southerly through a thickly populated district of the City of Toronto to Ashbridge's Bay, over the right of way provided by the Harbour Commission into a connection at the foot of Church, Bay or York Street with the proposed uptown terminal. The estimates provide in the initial period of 1924 for the complete rehabilitation of the existing line of the Toronto Eastern Railway, and the new construction is noted in Exhibit 21 before the Radial Commission.

It should be noted that a large amount of the capital expenditure is for the portion lying within the City limits and "which is occasioned by the demand of grade separation by the City and the high speed line. To effect this certain heavy work is necessary, even in the initial stages of operation, as is shown by the examination of the profile extending southerly from the upper Don branch. It is considered unnecessary for the time being to elevate the tracks on the Harbour Terminal until track conditions would warrant same, and the estimates are prepared on the lower grade line.

## RESUME OF SPECIFICATIONS.

## Toronto &amp; Suburban Sections.

Right of Way 100 ft. wide.

Ruling grade 1.25%.

Maximum curvature 6°.

Overhead clearance 18 ft.

Bridge loading E. 50.

Bridge construction, steel and concrete.

Weight of rail, 80 lbs.

Distribution System, 1,500 volt conductor, 10 point Catenary on cross span for double track and on brackets for single track.

Ultimate complete grade separation through Toronto.

## Remainig Sections.

Right of Way 66 ft. wide.

Ruling grade, 3.5%.

Maximum curvature, 10'.

Overhead clearance, 15 ft. 3 in.

Bridge loading, E.40.

Bridge construction, partly steel and concrete, partly timber.

Weight of rail through towns, 80 lbs., elsewhere 60 lbs.

Distribution System same as Toronto &amp; Suburban sections.

### "TORONTO-ST. CATHARINES:

The line extends westerly from a connection with the proposed uptown terminal at the foot of Bay Street across the Harbour Commission's property, through the Exhibition Grounds to Sunny-side, thence westerly paralleling the Grand Trunk to Clarkson. From here the line diverges slightly to the south passing through the centre of Oakville and to a proposed connection with the Hamilton Radial Railway. From Oakville the line parallels the latter to Burlington. In the event of the acquisition of this line this portion would be co-ordinated in the same. From Burlington the line extends westerly passing just south of Aldershot, and effecting entrance into the City of Hamilton by paralleling the Grand Trunk right-of-way into the foot of James St. Through Hamilton two locations were estimated upon, one extending through on the Grand Trunk right-of-way providing for additional trackage, and the other an entirely independent line free from any operating restrictions that the former might impose. From the east city limits of Hamilton the line extends Easterly crossing the Grand Trunk at grade near Stoney Creek and roughly paralleling same through to Grimsby, where it diverges to the south and closely parallels the main highway through to a point about a mile and a half west of the Grand Trunk station at St. Catharines. Provision was made at the grade crossing of the Grand Trunk at Stoney Creek for its ultimate elimination. At St. Catharines a junction is effected with the Niagara, St. Catharines & Toronto Railway, which it is proposed to use as a connecting link with the Frontier at Niagara Falls.

### RESUME OF SPECIFICATIONS

#### Toronto-Hamilton Division.

Right of Way, 100 ft. wide.

Ruling grade, 0.5% (except for short stretches in Toronto and Hamilton where grade separation has demanded slight increases).

Maximum curvature, 68, except for one 108.

Overhead clearance, 18 ft.

Bridge loading, E.50.

Bridge construction, steel and concrete.

Weight of rail 80 lbs.

Distribution System, 1,500 volt conductor, 10 point catenary on cross span for double, and brackets for single track.

Ultimate complete grade separation through Toronto and suburbs and in north and centre Hamilton.

#### Hamilton-St. Catharines Division. Stoney Creek-St. Catharines Sec.

Right of Way, 100 ft. wide.

Ruling grade, 1.5%.

Maximum curvature, 4°.

Overhead clearance, 24 ft.

Bridge loading, E.50.

Bridge construction, steel and concrete.

Weight of rail, 80 lbs.

Distribution System, same as Toronto-Hamilton.

#### St. Catharines-Niagara Falls, not including Niagara Street Railway.

Right of Way, 66 ft. with a few short stretches of 50 ft.

Ruling grade, 1.83%. (virtual).

Maximum curvature, 8° 30' except in city.

Overhead clearance, 20 ft.

Bridge loading when improvements completed will be E60 to E50.

Bridge construction, wooden structures, being gradually replaced with steel and concrete or earth fill.

Distribution system, 600 volt direct suspension brackets. Changes in overhead insulation and substation equipment are required to provide for 1,500 volt operation.

Partial grade separation through Merritton and Thorold.



**NIAGARA, ST. CATHARINES & TORONTO RLY.**

As already noted the acquisition of this system will provide a Frontier connection for the Toronto-St. Catharines line, and, while it is intended for the time being to use the existing line between St. Catharines and Thorold, a location has been established which would eliminate many of the objectionable features which are now limiting factors in the operation of the system as a through line. The estimates provide for the necessary rehabilitation of this system to bring same up to the standard required as a through line and such other replacements or betterments as are considered necessary for the efficient operation of same. Negotiations have been conducted with certain American lines in order to effect an international connection at the frontier, and the belief is warranted that such may be effected, giving a direct connection with the centre of Buffalo, so that through passengers and freight may be efficiently handled from that centre to Toronto.

**RESUME OF SPECIFICATIONS.**

Right of Way, 50 to 66 feet, when not on highway.

Ruling grade, about 2.27% in private right of way, 5% on streets and other highways.

Maximum curvature, 20°, except on street railway systems and at car barns.

Bridge loading, about E45 to E25.

Bridge construction largely timber with a number of steel swing spans.

Weight of rail, 56 to 67 lbs., also a considerable amount of 80 lb. relay.

Distribution System, 600 volt conductor, direct suspension on cross span along certain streets, elsewhere on brackets.

**WENTWORTH-WATERLOO DIVISION:**

The location extends west from the junction with the main line in the vicinity of the Desjardins Canal crossing the Grand Trunk at grade and undercrossing the cemetery and the Toronto, Hamilton and Buffalo Railway. An alternative location, however, has been established which will provide for the elimination of the grade crossing with the Grand Trunk Railway. From the undercrossing of the T. H. & B. the line extends westerly up the Dundas Valley to Copetown, thence via Brockton, Sheffield to Galt, effecting a connection with the Grand Trunk Railway, Galt, Hespeler & Guelph branch over which it is proposed to obtain running rights, and via a cross town connection with the Galt, Kitchener & Elmira branch of the Grand Trunk Railway, which it is proposed to acquire. This latter branch serves all the principal industries in Kitchener, and with slight expense can be arranged to connect with the principal industries of Galt. At Kitchener it is proposed by new construction to eliminate present operation over the main line tracks of the Grand Trunk; Below the Preston yard of the Grand Trunk Railway across river connection is proposed in order to effect efficient train movement through Guelph via Preston to Kitchener and Galt. At Guelph a connection is proposed from a point near the Guelph Junction to the end of the line on Waterloo Road of the Guelph Radial Railway, thereby effecting a central passenger entrance into the centre of Guelph and a freight connection through the lower outskirts of Guelph with the Toronto Suburban.

**RESUME OF SPECIFICATIONS**

Right of Way, 100 feet wide.

Ruling Grade, 1.8%.

Maximum curvature, 8°.

Overhead clearance, 18 feet.

Bridge loading, E50 Hamilton to Galt, E30 to E35 remaining sections.

Bridge construction, steel and masonry except for a very few timber structures.

Distribution System, 1500 volt conductor, catenary on brackets.

**TORONTO SUBURBAN:**

It is proposed to acquire the existing line of the Toronto Suburban Railway Company extending westerly from Lambton to Guelph and the line extending from Weston to Woodbridge. Certain operations of the existing system now within the City of Toronto are essentially city operation and it is expected will be turned over to the City Transportation Commission for operation. It is intended by new construction to effect physical connection with

both lines mentioned via the route of the old Belt Line Railway in the Humber Valley with the main line extending west from Sunnyside by undercrossing the Grand Trunk Railway and ramping up to the grade elevation of the main line. This will then permit the cars of the Toronto Suburban Railway to traverse the entire distance within the urban area of Toronto at high speed.

### RESUME OF SPECIFICATIONS

#### Guelph and Lambton Swansea Sections.

Right of Way, 66 ft. wide.

Ruling Grade, 2% compensated except for a few short stretches somewhat steeper which may be operated as velocity grades.

Maximum curvature, 11° excluding one 20° curve.

Overhead clearance, top of rail to underside of permanent structure 16 ft. 3 in.

Bridge loading E50 to E41.5.

Bridge construction chiefly steel and concrete, a few timber structures.

Weight of rail, 60 lbs. per yard.

Distribution System, 1500 volt conductor, 5 point catenary on brackets.

#### Weston and Woodbridge Sections.

Right of Way, 66 feet wide except when on or alongside highway.

Ruling grade, 3% virtual on private right of way, about 5% on highway.

Maximum curvature, 12° except on streets.

Overhead clearance, 12 ft. 4 in.

Bridge loading, about E41.5.

Bridge construction, chiefly steel and concrete, a few timber structures.

Weight of rail 60 lbs. per yard.

Distribution System. 600 volt conductor, direct suspension on brackets with cross span on streets.

#### Remaining Sections.

Right of Way, 66 ft. wide.

Ruling grade, 3.5%.

Maximum curvature, 10°.

Overhead clearance, 15 ft. 3 in.

Bridge loading, E40.

Bridge construction, partly steel and concrete, partly timber.

Weight of rail through towns 80 lbs., elsewhere 60 lbs.

Distribution System, same as Toronto & Suburban Sections."

No reference to mileage or double tracking is included in the above.

### APPENDIX 13

(Signed) "R.F.S."

" "A.F.M."

" "W.A.A."

" "C.H.M."

(Copy)

Ottawa, Ontario,

June 23rd, 1920

Memorandum for Hon'ble J. D. Reid,

Minister of Railways and Canals,

I have discussed with the members of the Ontario Government the question of purchasing the three electric railways in the Province of Ontario owned by the Canadian National Railways, namely: The Toronto and Eastern Railway, the Toronto Suburban Railway, the Niagara, St. Catharines and Toronto Railway. I informed them of the discussion with the sub-committee of the Dominion Cabinet when last here in Ottawa, and advised that I was prepared to recommend the taking over of the said electric railways on the following terms:—

*Toronto Eastern Railway.* Price \$706,000.00 payable by Hydro Power Commission 4½% fifty year bonds guaranteed by the Province of Ontario.



*Toronto Suburban Railway.* On this railway there are \$2,628,000.00 of outstanding 4½% bonds due 1961. This is to be taken over by the Hydro Power Commission, and the Hydro Power Commission to assume the bonds.

*The Niagara, St. Catharines and Toronto Ry.* Price for this railway to be \$3,544,374.10. On this road there are \$1,098,000.00 five per cent bonds due 1929. The Hydro Power Commission will assume these bonds and give Hydro Power Commission bonds guaranteed by the Province of Ontario. 4½% fifty-year bonds for the difference between \$1,098,000.00 and \$3,544,374.10.

It was understood in the discussion with the sub-committee of the Dominion Cabinet that the Toronto Suburban Railway and the Niagara, St. Catharines and Toronto Railway must be taken together.

I understand a meeting of the Ontario Government will be held to-morrow (Thursday), and may I ask that you authorize me to say the Dominion Government are prepared to accept this offer?

It is understood, if the Hydro Power Commission take over these radial railways on behalf of the municipalities, it is one of the conditions, in view of the above agreement as to price, that an exclusive traffic agreement will be made for all traffic between the above electric railways and the Canadian National Government-owned railways.

(Signed) ADAM BECK

Council have approved of  
this proposition, June 23rd, 1920.

J. D. REID.







# MINORITY REPORT

August 8th, 1921.  
OSGOODE HALL

To His Honour The Lieutenant-Governor:

The Commissioners appointed by Your Honour to inquire into and report upon the whole question of Hydro-Electric Railways for the Province of Ontario, have completed the investigation. Finding that I am unable to agree with the other members of Your Commission upon a report and recommendations, I submit a separate report to Your Honour, with recommendations, as a result of the inquiries which have been made by the Commission.

The Royal Commission dated the twenty-first day of July, 1920, authorized and empowered the Commission:

- (1) "To inquire into and report upon the whole question of Hydro-Electric Railways, and all matters which in the opinion of the Commissioners are relevant thereto, with particular reference to the matters that are raised by and discussed in the statement of the Government issued on the Sixth day of July, instant, a copy of which is hereto attached."
- (2) "To make such suggestions and recommendations in connection with or arising out of any of the subjects thus indicated as in the opinion of the said Commission may be desirable."

The statement of the Government issued on the Sixth day of July, and particularly referred to in the Royal Commission, brings up the whole question very clearly, on Page 7 of the printed document. I propose to take this query of the Government, and answer it very plainly. It is my desire to strip the whole subject of technicalities and deal with it in the broad manner indicated in the Government statement.

The Government asks:

"THE BROAD QUESTION OF POLICY IS NOW UP FOR DETERMINATION. SHALL THIS GOVERNMENT ADOPT THE PRINCIPLE OF PUBLICLY OWNED AND OPERATED RADIAL RAILWAY SYSTEMS FOR THE PROVINCE AS A WHOLE—AND PROCEED ENERGETICALLY, THROUGH THE HYDRO ELECTRIC POWER COMMISSION. AS CONDITIONS MAY WARRANT, WITH THE CONSTRUCTION (OR ACQUISITION) AND OPERATION OF SUCH A SYSTEM."

In a report to the Government on Hydro-Electric Power Commission finances dated the Third Day of March, 1920, made by F. C. Clarkson, Esq., as a result of an audit by him, he refers to "Hydro-Electric Railway Lines," on Page 20 of the printed report. One statement he makes should be considered in connection with the Government query quoted above.

Mr. Clarkson states:

"Under section 7 of the Act it is provided that neither the Province nor the Commission shall be liable for the payment of the bonds to be issued by the Commission except to the extent of the moneys which shall be received in connection with the operation of the railway line or from the sale of debentures to be deposited with the Commission by the municipalities. Under Section 8 of the Act, however, it is provided that the Lieutenant-Governor in Council may authorize the Treasurer of the Province of Ontario to guarantee the payment of the bonds issued by the Commission.

THERE IS ALMOST A CERTAINTY THAT THE BONDS SO TO BE ISSUED IN RESPECT OF ANY RADIAL LINE CANNOT BE SOLD BY THE COMMISSION TO ADVANTAGE WITHOUT THE GUARANTEE OF THE PROVINCE."

It is quite plain from the evidence, that the bonds to raise money to build electric radial railways in Ontario must be guaranteed by the Province, if the money is to be raised advantageously, or a radial scheme successfully launched. Radial railways in Ontario designed to engage in

interurban, suburban and freight traffic, operating through various municipalities, as is proposed, cannot be successfully financed without the Government pledging the credit of the people to back such a publicly owned enterprise. I cannot agree with any suggestions made during this investigation, that municipalities should finance radials operating through various municipalities without a Government guarantee. After listening to a long enquiry, to say the municipalities must finance their own radials without a Government guarantee is equivalent to saying, radials must not be built. I agree with Mr. Clarkson that the bonds to be issued in respect of any radial line cannot be sold to advantage without the guarantee of the Province. I propose to divide the query of the Government into two sections.

FIRST. "SHALL THIS GOVERNMENT ADOPT THE PRINCIPLE OF PUBLICLY OWNED AND OPERATED RADIAL RAILWAY SYSTEMS FOR THE PROVINCE AS A WHOLE?"

In my judgment, YES.

SECOND. "AND PROCEED ENERGETICALLY THROUGH THE HYDRO-ELECTRIC POWER COMMISSION AS CONDITIONS MAY WARRANT? WITH THE CONSTRUCTION (OR ACQUISITION) AND OPERATION OF SUCH A SYSTEM?"

In my judgment, YES, qualified by certain recommendations and suggestions which I will deal with later. Carrying out further, the answers to the query of the Government, I respectfully recommend:

1. That the Government adopt the principle of publicly owned and operated electric railways for the Province of Ontario.
2. That the Government instruct the Hydro-Electric Power Commission to proceed at once with negotiations to complete contracts or agreements for the following; the purchase of certain electric railways now owned by the Federal Government and the traffic arrangements which may enter into the agreements; the purchase of a section of the Grand Trunk steam railway owned by the Federal Government; to acquire running rights over certain sections of the Grand Trunk Railway; entrance into and through Hamilton on the right of way of the Grand Trunk Railway and other arrangements and agreements which I propose to outline in this report.
3. Upon the completion of such agreements or contracts, or the choice of alternate plans where a satisfactory agreement or contract is not arrived at, the Hydro-Electric Power Commission shall at once place before the Government the result as completed, showing clearly where their expectations were realized and where alternate plans had to be chosen.
4. Following the action indicated above, the Government shall request the Hydro-Electric Power Commission to recommend to the Government, the most advantageous and economical time to commence construction of radial railways, and on which Division or Divisions construction should begin first. The amount of money already expended on the Toronto and St. Catharines Division with the desire of the municipalities so clearly expressed, would suggest that this Division ought to be commenced first and hurried to completion, so that the revenues may be earned as speedily as possible. This Division is admittedly the best and most favourable in the whole project.
5. I strongly recommend to the Government and the Hydro-Electric Power Commission, that when they are deciding the date for commencement of construction of radial railways, very great weight should be given to the present state of unemployment. The Government could help a great deal by commencing work on such a public utility as radial railways, whereby many men could earn wages and the Government obtain return in labour for the money expended.
6. The Hydro-Electric Power Commission should have as a member one of the best and most experienced railway men in operating and traffic who can be found. Such a railway expert would be of great assistance to Chief Engineer Gaby, whose duties in connection with the power projects are onerous now, and upon whom much of the work connected with radials is likely to fall. Legislation may have to be passed to increase the number of members on the Commission, but such an experienced railway authority should be obtained without delay and placed in a position where he

could be of greatest assistance to the Hydro Electric Power Commission. This is no reflection upon any of the engineers of the Hydro Commission, but a recommendation to assist the Government and the Commission in a great public project of magnitude.

7. The utmost cooperation and frankness should govern the relations of the Hydro-Electric Power Commission, in this great public enterprise of publicly owned and operated radial railways. There can be only one purpose and that is the progress and welfare of this great Province. The scheme of radial railways outlined before the Royal Commission by the Hydro Power Commission, amplified and improved by experts in evidence before the Commission will be of immense benefit to the territory involved and the Province as a whole, and there is every reason to believe confidently that the radials will be self-supporting, providing service at cost to the citizens and ensuring a healthy development and progress for Ontario which lack of such transportation facilities will seriously obstruct.

The following questions arising directly or indirectly out of the Government statement of July 6th, 1920, have been answered in the recommendations.

- (1) Shall the Government endorse the principle of electric radial railways for Ontario and back the municipalities by guaranteeing the necessary bonds?
- (2) What contracts or agreements have yet to be completed in connection with the scheme?
- (3) When should construction commence and on which divisions?
- (4) Should the Hydro Electric Power Commission be relieved from the care and responsibility of operating the radial railways proposed?
- (5) Will the scheme as presented to the Royal Commission be self-supporting?

In addition, I propose to deal with subjects arising out of the Government statement and the inquiry, in the following order:

- (1) Fundamental difference between the radial railways as proposed and interurban electric railways of the United States, which must be considered in any comparison made.
- (2) City of Toronto.
- (3) Duplication and electrification of steam railways.
- (4) Canadian National Railways and competition of radials, and of good roads.
- (5) Financial Liabilities of the Province of Ontario.
- (6) Mr. Gutelius' proposal of electric railways for this territory.
- (7) Mr. R. I. Todd's remarks, on the benefit to the State of Indiana of electric interurban railways.
- (8) Tests to which the proposal has been subjected.
- (9) Responsibility for delay in the investigation.
- (10) I propose to take each recommendation made in order, and deal with the whole subject, by placing each part with its particular recommendation.

#### DIFFERENCES BETWEEN RADIAL RAILWAYS PROPOSED AND INTERURBAN RAILWAYS IN THE UNITED STATES.

One of the great difficulties during the investigation was in finding any radial railways on this continent with the same fundamental characteristics, such as the combination of services to be given with the physical advantages as proposed in the Hydro project. Many experts have given evidence of the operation of interurban electric railways with which they were well-acquainted and to some of which evidence I propose to refer in this report.

The Engineers of the Hydro Commission and the Engineers of the Arnold Staff were most positive in their evidence indicating that there were great differences between the radial railways proposed and the interurban electric railways of the United States. The general evidence is greatly in support of this contention.

In my opinion, many of the experienced operating experts from the United States who gave evidence, overlooked or failed thoroughly to appreciate these very evident differences in the electric railways which they used for comparison. In the summary following, I have indicated the main fundamental differences between the interurban electric railways of the United States and the proposal made by the Hydro Electric Power Commission for Radial Railways in Ontario.



## FUNDAMENTAL DIFFERENCES BETWEEN PROPOSED RADIAL RAILWAYS FOR ONTARIO AND ELECTRIC INTERURBAN RAILWAYS IN UNITED STATES.

### PROPOSED RADIAL RAILWAYS FOR ONTARIO

It is proposed in the Hydro Radial Scheme to provide three main classes of services. These services are composed of, a rapid transit interurban passenger service between urban centres, a rapid transit suburban passenger service from main terminal centres, and a regular freight service, including carload freight, less than carload freight and miscellaneous freight for the system.

Two Radial Railways proposed are to be of very high class construction, thoroughly equipped to carry on the services mentioned and enter the main terminal cities of Toronto and Hamilton over their own right of way to their own terminal. The Railways to be constructed are wholly on their own right of way.

Two electric railway divisions are to be acquired which are in operation at the present time, namely: the Niagara Central lines which are in a splendid strategical position to further develop their already big freight traffic and over which a frontier connection will be made for the proposed system as a whole; and the Toronto-Guelph Railway which it proposed to connect to the Toronto Terminal, by joining it to the Toronto-St. Catharines Division on the Lake Shore Road between Sunnyside and the Humber.

The proposed Radial Railways are to be thoroughly equipped for carrying carload and less than carload freight over their own right of way and into the various urban terminal centres. The railways will have the co-operation of the Municipalities throughout the territory, will be free from franchise limitations imposed by Municipalities and the five divisions will be owned by the people and operated on a basis of service at cost.

The radial system as proposed will have the advantage of cheap power in abundance.

### UNITED STATES ELECTRIC INTER-URBAN RAILWAYS

Generally, as revealed in the evidence, the interurban electric railways of the United States, have varied characteristics and differ in many ways from the system as proposed for Ontario. Almost all of the interurban roads in the United States enter the main terminals over the street railway tracks and have to follow the comparatively slowly operated city street cars. Several of them are almost wholly on their own right of way from the boundaries of the main cities. Some are partially on their own right of way from outside the city boundaries and partially follow the highways, while others are almost wholly on the highways and follow the contour of the roads.

The interurban electric railways as a rule when they enter main cities over street railway tracks make a financial arrangement with the city street railway for so doing. Often the interurban earnings of the electric railways of the United States mean the earnings of the interurban lines exclusive of the earnings in the main cities, or a division of fares with the city street railway.

The operation of these electric interurban roads is hampered by municipal franchises which particularly limit their freight operation.

Originally, many of the interurban systems in the United States were separate parts and amalgamated later into systems. For many reasons they apparently didn't engage in a regular freight business. It is quite clear that originally they were not designed to engage in freight service to any great extent. Type of construction, equipment, franchise limitations, opposition of steam roads and other reasons all entered into the question.

The most successful of the interurban railways in the United States are at present, doing their utmost to develop the freight business and are equipping the railways for that purpose.

None of them have the advantage in cheap and abundant power that the proposed radials for Ontario will have.

There is no doubt about the fundamental differences between the interurban electric railways in the United States and the radial railways as proposed for Ontario. It must be remembered that these differences affect every comparison that can be made or every test that can be

applied to the Hydro Radial Proposal. The differences affect the revenues both passenger and freight; revenues per mile of route or mile of track; cost of operation per mile of route or mile of track; cost of operation per car mile and revenue per car mile. All the figures of operation and revenue are affected by these differences, and to compare one of the electric interurban railways in the United States, its revenue and operation, with the Hydro project without taking into consideration all these fundamental differences is overlooking existing facts. The revenues and operating costs of electric interurban railways in the United States and the general experience in operation are a very helpful guide when all the fundamental differences are taken into consideration.

If a comparison in revenue and cost of operation is made, it would seem fair to compare interurban earnings and costs on the proposed railways with interurban earnings and costs on other railways; suburban earnings and costs with suburban earnings and costs on other railways; and freight earnings and costs with freight earnings and costs on other railways.

One expert, Bion J. Arnold, and his staff of assistants during this investigation completely segregated the earnings and costs by services. Mr. Arnold and his chief assistant, Mr. Fred Sager, were called to give evidence after making a most thorough investigation and comprehensive report on the whole scheme. A table in this report shows this segregation of earnings and costs in detail.

The Hydro Engineers during the investigation, repeatedly in their evidence, drew the attention of the Commissioners to the fundamental differences existing between the interurban railways of the United States and the Hydro Radial Proposals as before the Commission.

Six days after Your Commissioners were appointed, a Commission to enquire into electric Railways in the United States concluded its labours and presented a report and recommendations to the President.

The Commissioners in their recommendations, establish beyond doubt the fundamental differences referred to in this report. And it must be remembered that a great mass of the evidence against the scheme proposed was obtained by comparing the expectations for it, with electric railways in the United States.

The Federal Report has often been referred to in evidence and is attached to the majority report of Your Commissioners as one of the appendices. It should be remembered, that the report deals with the whole subject of electric railways, in the United States, both street railway systems and interurban or radial railways as they are called in Ontario.

These Commissioners state:

"A large number of factors have contributed to the present plight of the electric railway industry. These may be mentioned:

- (a) THEY WERE NOT CONSERVATIVELY FINANCED IN THEIR EARLY YEARS, AND HAVE NOT SINCE MADE GOOD THEIR OVER-CAPITALIZATION, EXCEPT TO A LIMITED EXTENT, OTHERWISE THAN THROUGH THE PROGRESS OF BANKRUPTCY AND REORGANIZATION."

The Commissioners who made this Federal Report are:

CHARLES E. ELMQUIST, President and General Solicitor of the National Association of Railway and Utilities Commissioners.

EDWIN F. SWEET, Assistant Secretary of Commerce, representing the Department of Commerce.

PHILIP N. GADSDEN, representing the American Electric Railway Association.

ROYAL MEEKER, Commissioner of Labour Statistics, Department of Labour, representing that Department.

LOUIS B. WEHLE, General Counsel of the War Finance Corporation, representing the Treasury Department.

CHARLES W. BEALL of Harris, Forbes & Company, New York, Bankers, representing the investment Bankers' Association of America.

WILLIAM D. MAHON, President of Amalgamated Association of Street & Electric Railway Employees of America, representing that Association.

GEORGE L. BAKER, Mayor of Portland, Oregon, representing the American Cities' League of Mayors.



The Commissioners proceeded in the following manner:

"The Commission gathered its testimony mainly in two ways: First, by public hearings, at which 95 witnesses testified in person and 21 others sent prepared statements; second, by a series of questionnaires sent to every city in which there is a street or interurban railway, addressed to the electric railways, the mayors, chambers of commerce and the Central Labour Unions, and also to all the State Public Utility Commissions."

Among the conclusions and recommendations are the following:

"THE ELECTRIC RAILWAY FURNISHING TRANSPORTATION UPON RAILS IS AN ESSENTIAL UTILITY, AND SHOULD HAVE THE SYMPATHETIC UNDERSTANDING AND CO-OPERATION OF THE PUBLIC IF IT IS TO CONTINUE TO PERFORM A USEFUL PUBLIC SERVICE.

"THE ELECTRIC RAILWAY HAS BEEN, AND WILL CONTINUE TO BE, A PUBLIC UTILITY, SUBJECT TO PUBLIC CONTROL AS TO THE EXTENT AND CHARACTER OF THE SERVICE IT RENDERS, AND AS TO THE RATES IT CHARGES FOR SUCH SERVICE.

"IT IS OF THE HIGHEST IMPORTANCE THAT BOTH THE TOTAL COST OF THE SERVICE AND THE COST TO THE INDIVIDUALS WHO USE IT SHALL BE KEPT AS LOW AS POSSIBLE WITHOUT INJUSTICE TO THOSE WHO TAKE PART IN PRODUCING IT.

"The electric railways must expand to meet the growing needs of their communities; therefore, the first essential is to restore credit in order to obtain necessary new capital for the extension and improvement of service.

"RESTORATION OF CREDIT INVOLVES A READJUSTMENT OF RELATIONS WHICH WILL REMOVE PUBLIC ANTAGONISM, PROVIDE PUBLIC CO-OPERATION, AND INSURE TO THE INVESTOR THE INTEGRITY OF HIS INVESTMENT AND A FAIR RATE OF RETURN THEREON.

"THERE CAN BE NO SATISFACTORY SOLUTION OF THE ELECTRIC RAILWAY PROBLEM WHICH DOES NOT INCLUDE THE FAIR VALUATION OF THE PROPERTY EMPLOYED IN THE PUBLIC SERVICE, AND WHERE THAT IS DONE, THE COMPANIES SHOULD VOLUNTARILY REDUCE ANY EXCESSIVE CAPITALIZATION TO THE BASIS OF SUCH VALUE.

"There is no insuperable objection to a large, wide-awake city having exclusive jurisdiction over the rates and services of public utilities.

"The necessity for scientific and successful regulation of systems, whether large or small, and especially those which operate through several cities and villages and in rural territory, leads to the conclusion that local regulation should generally be subject to the superior authority of the State, whether as a matter of original jurisdiction or through the medium of appeal.

"Cost-of-service contracts are in the experimental stage, but where tried, they seem to have secured a fair return upon capital, established credit, and effected reasonably satisfactory public service. Such contracts may safely be entered into where the public right eventually to acquire the property is safeguarded.

"The right of the public to own and operate public utilities should be recognized and legal obstacles in the way of its exercise should be removed.

"PUBLIC OWNERSHIP AND OPERATION OF LOCAL TRANSPORTATION SYSTEMS, WHETHER OR NOT IT BE CONSIDERED ULTIMATELY DESIRABLE, IS NOW, BECAUSE OF CONSTITUTIONAL AND STATUTORY PROHIBITIONS, FINANCIAL AND LEGAL OBSTACLES, THE PRESENT DEGREE OF RESPONSIBILITY OF OUR LOCAL GOVERNMENTS, AND THE STATE OF PUBLIC OPINION, PRACTICABLE IN SO FEW INSTANCES, THAT PRIVATE OWNERSHIP AND OPERATION MUST AS A GENERAL RULE BE CONTINUED FOR AN EXTENDED PERIOD.

"IF THE REFORMS INCIDENT TO PUBLIC REGULATION WHICH WE SUGGEST IN THIS REPORT SHOULD NOT RESULT IN MAKING PRIVATE OWNERSHIP SATISFACTORY TO THE PUBLIC, SUCH REFORMS SHOULD AT LEAST ENABLE PUBLIC OWNERSHIP TO BE ESTABLISHED UPON A JUST AND EQUITABLE BASIS."



Among many reasons given by the Commissioners for the "Financial Condition of the Electric Railway industry," are:—

"A large number of factors have contributed to the present plight of the electric railway industry. These may be mentioned:

"THEY WERE NOT CONSERVATIVELY FINANCED IN THEIR EARLY YEARS. AND HAVE NOT SINCE MADE GOOD THEIR OVER-CAPITALIZATION, EXCEPT TO A LIMITED EXTENT, OTHERWISE THAN THROUGH THE PROCESS OF BANKRUPTCY AND REORGANIZATION. In the early days the promoters of electric railway properties believed that long term franchises with a five cent fare would be permanently profitable. Large sums of money were required to develop the business. In many cases the promoters issued bonus stock to represent their hopes and expectations. This bonus stock did not represent money, service or property, and added nothing to the value of the plant. As a result of this practice, there are many cases where the existing capitalization exceeds the investment in the plant or the value thereof.

"Neglect to amortize this excess capitalization.

"Failure to amortize the normal accrued depreciation.

"Payment of unearned dividends and neglect of ordinary maintenance.

"Limited franchises which impair credit and toward the expiration of the franchise result in neglect of the maintenance of the property.

"HOLDING COMPANIES AND BANKER CONTROL: About 75 per cent of the public utilities of the country are held, in whole or in part, by so-called "holding companies" which are responsible for their operation. This financing is done in large part through the securities of the parent company, which securities are supported by the securities of the various operating companies. This frequently gives an element of strength to the securities of the parent company which a single localized operating company could not in all cases present. If it were not for the supporting strength of these parent companies, many of the individual operating companies would have gone under before January 1, 1918.

"Through these holding companies the electric railways threaten to become a banker-controlled industry. Those who have the ultimate say in matters of street railway policy from the point of view of investors have been dependent for their profits and their power upon the volume of securities outstanding and the frequency with which these securities have been exchanged or refunded. Holding companies in many instances have been responsible for over-capitalization, and have insisted upon drawing from the underlying companies every possible cent that could be secured in order to make a showing on these inflated securities. Hon. Joseph B. Eastman, at present a member of the Interstate Commerce Commission, discussed the question as follows:

"In the third place a factor of weakness I think was the control of the companies in many instances by holding companies organized in the form of voluntary associations, or to use a more technical term, express trusts. Although the stock and bonds of the street railway companies themselves were issued under public supervisions, these voluntary associations which corralled all their stock were subject to no regulation whatever and issued shares upon an inflated basis, and that had the result of accentuating the desire to draw every possible drop of income out of the underlying companies that could be secured in order to support earnings upon the inflated shares of these voluntary associations."

"Through this system of financing and management, the utilities have been largely controlled by persons living distant from the community affected by a particular electric railway, whose prime consideration has been to secure a return upon the property. This "Absentee" management and control has not been successful in bringing about the proper spirit of co-operation between the local managers, employees, and the public. Since the electric railway companies come into immediate daily contact with large numbers of people, it is of the utmost importance that the industry should gain and hold the respect, confidence and good-will of its patrons. IF THE LOCAL PUBLIC SHOULD INVEST ITS MONEY IN THE STOCKS AND BONDS OF ITS LOCAL UTILITIES THERE WOULD BE AN IMPROVEMENT IN THE RELATIONS NOW EXISTING BETWEEN THE CORPORATION AND THE PUBLIC."

Under "Preservation of Records" the Commission states:

"We would particularly urge public officials and officers of the electric railways to co-operate seriously in the protection and preservation of all corporate, financial and cost records.

"Service-at-cost plans have been recently rejected by popular vote, largely on the issue of valuation, in Chicago, Denver and Minneapolis. The public, justly or unjustly, has become to be so suspicious of the electric railway companies that it may be expected to reject any service-at-cost or public ownership question submitted to popular vote, no matter how fairly the plan may be formulated, if they are not thoroughly convinced that the capital item has been fairly and honestly arrived at. The failure of a company to preserve its records may in the end hurt its stockholders more than it may the public.

Dr. Delos F. Wilcox, who was engaged by the United States Commission "to aid in analyzing the testimony gathered and to make suggestions to the Commission with reference to its report" stated in his evidence:

"I have reached the conclusion that there is no ultimate solution unless we undertake local transportation as a public function and perform it as a public function. The street railways cannot exist except through their franchises on the public streets. You could never give them the freedom again from domination that private business enjoys. There is an irreconcilable conflict with the public and operation for profit has resulted in distrust and hatred and poisoning of the public atmosphere in our cities."

The evidence given before your Commission provides many glimpses of the reasons underlying the United States Commission's report. The evidence of Mr. F. W. Coen, treasurer of the Lake Shore Electric Railway, illustrates the difficulty of arriving at the actual capital cost of a property in the United States.

PAGE 2750.

Q. Your property stands you in at the present time \$14,161,653.06? A. Yes.

Q. To pay 6% interest on that it would require about \$800,000 would it not? A. Approximately that.

Q. \$840,000? A. Yes.

Q. And in 1919 your net earnings were \$577,000 after paying operating expenses and taxes? A. That is right.

Q. Nearly \$600,000? A. Yes.

Q. And this year they would be, according to you, about \$50,000 more, that would be \$637,000. So that with your property at a cost of \$14,000,000 it would not have sufficient to pay 6%? A. No."

PAGE 2752.

"COMMISSIONER BANCROFT: Did you say the valuation is \$14,000,000? A. Yes; that is the figure in the balance sheet.

Q. Is that the whole business? A. Yes.

MR. HELLMUTH: Q. I thought this was the Lake Shore Electric? A. That is the Lake Shore Electric forgetting the others entirely.

COMMISSIONER BANCROFT: Q. The \$14,000,000 does not include the others? A. No.

Q. Then \$14,000,000 is the valuation? A. I didn't say that; it is the total of the condensed balance sheet.

Q. Mr. Hellmuth asked you if your earnings on the Lake Shore Electric Railroad would pay interest on the \$14,000,000. Now, where did that come in? A. Of course, it would not.

Q. Where does the \$14,000,000 come in?

MR. HELLMUTH: That is the cost of road and equipment, \$14,161,000.

COMMISSIONER BANCROFT: Just for the Lake Shore Electric?

MR. HELLMUTH: Yes.

MR. MCKAY: I do not want to interrupt but it looks on the balance sheet and it might as well be suggested now as on cross-examination—

MR. HELLMUTH: Page?

MR. MCKAY: Page 11, as though that were a balancing item. That is to say, they added up their capital stock, first preferred capital stock, second preferred, including the common, bonds and car trust and other things outstanding and they took what they had outside the Road and Equipment at the actual figures such as they were, and put the cost of Road and Equipment at \$14,161,653.06, being the exact amount necessary to balance. It looks like that.



COMMISSIONER BANCROFT: If the cost of Road and Equipment is \$14,000,000 as stated here, and it is only 120 miles it is over \$116,000 a mile for a purely interurban road?

A. I didn't say that that was the value of our property; I would not say so now.

MR. HELLMUTH: Q. What do you say about the cost?

A. That is not the cost.

Q. What is it? A. Under the laws of our state at the time the work was done, before you could issue any bonds you must have actual stocks, and portion of that does not represent actual money spent.

Q. I want to get really at the actual cost of that road?

A. Roughly speaking I would say the investment in that property was somewhere?—

Q. Including what you put into it? A. Yes—about \$9,000,000 or in that neighborhood.

COMMISSIONER MITCHELL: Of real money? A. Yes.

Q. Does that include the amount you put in from year to year? A. Yes; less some depreciation charges.

Q. So that in real money about \$9,000,000? A. In that neighborhood."

The proposal for Ontario is to build radial railways, publicly owned and operated, with the co-operation of the municipalities backed by the Provincial Government, and operated by the Hydro Commission as trustees for the Municipalities. There is no such comparison in the United States. It is not good judgment to condemn the proposed scheme because of comparisons made between the estimates of the Hydro Engineers and the Arnold Staff and the operation of interurban railways in the United States without giving weight to all the differences. It appears to me that my colleagues on the Commission have been too much impressed with this evidence without considering sufficiently the fundamental differences which exist.

CITY OF TORONTO: Considerable discussion has taken place during the Inquiry, about the position of the City of Toronto in the Radial Project. Suggestions were made of possibility of conflict of interest, between the Administration of the Toronto Street Railway Lines and the Administration of the Radial Railways.

Manager Couzens of the Toronto Transportation Commission and Engineer Cousins of the Harbour Commission consider it inconceivable that two Commissions, both acting in the interests of the people of Toronto, could not agree on what is best for the citizens and work in harmony to that end.

There is no necessity for conflict between the Toronto Street Railway System and the proposed Radial Railways.

Much discussion has taken place about the traffic expected on these radials in the City of Toronto and known as suburban earnings.

The Toronto-St. Catharines Division enters Toronto at Sunnyside and the railway is wholly on its own right-of-way to the Bay Street Terminal.

The Toronto Eastern Railway enters Ward 8 over its own right of way and continues on its own right of way to the Bay Street Terminal. A considerable amount of the right of way for both these railways is on the property controlled by the Harbour Commission.

On January 1st, 1920, the rate payers of Toronto carried a by-law assuming a debenture obligation of \$4,328,665 as the city's share for the construction of the Toronto Eastern Railway. This was carried by a vote of 21,978 in favour and 2,356 against.

On January 16th, 1916, the ratepayers of Toronto carried a by-law assuming a debenture obligation of \$4,240,196 as the city's share of the construction of the Toronto-Port Credit-London Radial Railway. This was carried by a vote of 21,161 to 5,166.

At a later date, as explained in the Clarkson letter, included in this report, the share of Toronto for the Toronto-Port Credit-London Line was adopted as the city's share of the Toronto-Port Credit-St. Catharines Line. The total amount carried in the two by-laws was \$8,568,861, based on estimates made from prices in existence previous to the date when the by-laws were submitted.

Surely it is reasonable to assume, that earnings in Toronto must be obtained to support Toronto's share of the investment in any case. It cannot be expected that other municipalities will provide all the earnings for this.



The radials enter Toronto over their own right-of-way. It cannot be considered that the radials earning revenue within Toronto on their own right-of-way are coming in conflict with the Street Railway System. The steam railways have such a right now and exercise it, when desired. It is possible that the radial lines may save the city considerable expense in construction costs for street railway extension.

The three branches of the Toronto and York Radials, to be acquired in the "clean-up," may present a different problem, as they are operated mostly on highways and streets and their disposition is a matter of arrangement between the Transportation Commission and the Hydro Commission. The situation regarding these branches has developed during the investigation and should not be confused with the radial scheme as submitted to the Government and the Royal Commission.

There is no reason for lack of harmony between the Radials and the City System, but every reason for co-operation. The inferences about a possibility of conflict have no real foundation. Attempts to separate Toronto from her sister municipalities in the proposed radial scheme should be deprecated.

While it is true, that some of the right-of-way for the radials is on the property controlled by the Harbour Commission, with the opportunities of serving the industries in Ashbridge's Bay, there is every reason to believe, that should the present proposal be discouraged and then returned to in future years, it will cost a great deal more money then, than it will now, to obtain rights-of-way through Toronto. This is the experience of cities in the United States, judging from the evidence.

**DUPLICATION, ELECTRIFICATION, AND GOOD ROADS:** It has been urged during the investigation that many parts of the radial lines are a duplication of existing lines, particularly the Grand Trunk Railway. One expert in his evidence, declared that it might be a duplication of tracks, but certainly not a duplication of service.

The evidence shows clearly that in the territory involved there is a small amount of steam railway suburban or interurban passenger service, at what is known as "commutation rates." The Grand Trunk Railway does give a "commutation service" to points west of Toronto as far as Oakville.

Judging from the evidence it would seem that the steam railway attitude is that short haul passenger service at reduced fares is the business of an electric railway. The short haul passenger service mentioned does not attract a steam railway from the standpoint of earnings.

Mr. Neal of the C.P.R. stated quite frankly that up to fifteen miles radius it was not steam railway business. Others have stated that this class of passenger service does not pay a steam railway. Several experts in their evidence declared the proposals as duplication, without properly informing themselves as to whether the steam railways provided a suburban or an interurban service in this territory at "commutation rates." More significant still, electrification of sections of the steam roads to provide adequate services, instead of building electric radials, was urged.

Is it not folly to suggest expenditures of large sums of money to electrify existing steam roads, to provide a class of suburban and interurban service that the steam railways fight shy of now, apparently, because it does not pay well enough? If it is not attractive enough up to the present time, how much less so, if the added cost of electrification of sections of the line are undertaken? This class of business is profitable to an electric railway.

Steam roads or terminals may be electrified in the future, but it will be for the carrying on of what is essentially steam road business.

The suggestion to spend large sums in electrifying sections of steam railways in Canada at the present time, to do the service the radials are proposed for, cannot be regarded seriously.

Much emphasis has been made of the deficits on the Canadian National Railways, and the Government statement of July 6th, 1920, draws attention to this on Page 9, stating "The Province of Ontario must not, of course, come into competition with the Canadian National Railway System" and then the deficits are outlined.

The radial services should be regarded as supplementary to the steam railways. It is not likely the steam railways will be harmed by these additional facilities. It is proposed to make agreements to interchange freight with the Canadian National Railways, and Dr. Reid, Minister

of Railways, outlined what he understood would be the nature of the agreement. His explanation indicates co-operation and harmony between the radials and the National steam lines. The Federal Government has intimated willingness to sell to the Province, through the Hydro Commission, three of the five divisions in the proposal, two of which are operating now. One of the reasons for this is evidently to save the Hydro Commission from duplicating existing lines at those points. It is not likely that the Federal Government or the Canadian National Railways would sell these three divisions, and give a freight traffic agreement as outlined by Dr. Reid, if the radial system was going to hurt the National Lines.

The Province of Ontario is engaged in constructing many roadways of modern construction at the present time and is committed to an extensive policy in this direction. There is abundant evidence that the completion of these roads will facilitate freight trucking over them. The roads completed provide some evidence of this, particularly the Toronto Hamilton Highway. This development of light and heavy trucking of freight over the provincial roads certainly takes freight from the steam railways and comes into competition with them, but it would not be considered a valid reason for discouraging the construction of necessary good roads.

There is a greater problem involved in the trucking of freight over good roads. Your Commissioners had evidence of this on their visit to the United States.

The modern highway provides almost a free right-of-way for transporting freight by motor trucks both heavy and light. These highways both in Ontario, and the United States, are built largely by public money. Heavy trucking plays havoc with these expensively built roads. Who is going to find the money for maintaining and reconstructing them? Will money be found by the public continuously to maintain and construct these roads as a right-of-way for freight traffic? Or, will the freight traffic and other traffic have to pay for the maintenance and reconstruction of them?

In several States to the South, there are definite movements now to get legislation to make the traffic which uses and destroys these highways pay the cost and Great Britain has already gone into this as the latest taxes on trucks, etc., will show.

It is plain that the heavy freight trucking will have to pay for its use of the highways and help to maintain the roads built with public money.

Your Commissioners have had much evidence about motor truck competition with steam and electric lines. The motor truck is a factor in transportation to-day. One witness told of the "large number of failures" among motor trucking companies in the United States, without this traffic having to bear the cost of maintenance and reconstruction. The electric interurban railway thoroughly equipped, will not suffer very much from competition by motor traffic in passenger or freight. If the freight traffic on highways has to pay its fair share for the up-keep of the highways, the electric railway will not be affected by competition of motor-trucking.

**FINANCIAL LIABILITIES OF PROVINCE:** A great deal has been said about the indebtedness of the Province and its liabilities. Many absolutely fail to distinguish between a provincial liability for public utilities which are revenue producers, and which carry themselves on a basis of service at cost, and obligations of a different character.

How is it possible for municipalities in co-operation to finance great public utilities such as the generation and distribution of power without the backing of the Provincial Government, which pledges the people's credit for the enterprise, or to finance such a big public enterprise as the radial project.

Federal and Provincial Governments in the past have not been very backward in guaranteeing bonds, and pledging the credit of the people for enterprises which the citizens did not own or operate. There can be no regrets that the Ontario Government backed the municipalities which took the initiative in Ontario for the public ownership and operation of the generation and distribution of power.

It is much more difficult for the people of Ontario to own and operate provincial public utilities such as power or radials without the backing of the Government to raise the money in the initial stages.

Public utilities which carry themselves and pay for themselves in a period of years by a sinking fund process whereby they ultimately are owned completely by the people are not liabilities to shrink from, but enterprises in which the citizens may take a justifiable pride.



**PROPOSAL OF MR. GUTELIUS:** Mr. F. P. Gutelius, President of the Delaware and Hudson Railway, who was engaged by the Royal Commission to study the proposal and give evidence, presented to the Commissioners a most interesting document from which he read much of his evidence. It was not filed as an exhibit, but the Commissioners were given copies.

Mr. Gutelius took very strong exception to the Hydro Engineers' estimates of freight revenue, particularly on certain divisions. He described them as visionary and extravagant.

The President of the Delaware and Hudson Railway was, perhaps, the only expert among those severely critical of the estimates of revenue, who constructively proposed a solution. His document contains "Final Conclusions" which I include in the report at this point.

#### FINAL CONCLUSIONS.

##### GUTELIUS.

"112. After having made a personal examination of the various railways involved in this scheme and including the proposed lines to be constructed, and after having discussed the details with Engineer Fairlie of the Hydro Electric Commission and having studied the evidence thus far presented to the Commission, and having in mind the fact that many of the Municipalities have already voted upon this question, it would appear to me that the proper solution is as follows:

"113. **TORONTO EASTERN:** Sell the line to the Oshawa Street Railway Company or make an arrangement with them to operate it, or as much of it as appears to warrant and scrap the remainder.

"Toronto to give the Kingston Road radial a rapid city connection and take care of Ward Eight in so doing.

"114. **TORONTO-ST. CATHARINES:** Toronto to give York Radial a rapid city connection at Sunnyside.

"The Municipalities to build or finance a single track line Port Credit to Oakville, present lines to be improved for through service, and operate it in conjunction with or by the Hamilton and Toronto Lines. The GOVERNMENT TO GUARANTEE THE BONDS if Toronto provides rapid city connection and Hamilton do likewise.

"Hamilton Railway Lines to be extended direct to Burlington when business justifies.

"Beamsville line to be extended through to St. Catharines—municipalities to build or finance and have it operated by the Hamilton and St. Catharines Lines as can best be arranged. (Government to guarantee the bonds).

"Hamilton to Beamsville to be improved for through service.

"**IN GENERAL:** Provide sidings and perform such local freight business as can be secured along the line same as is being done by the present lines—including express, milk, mail, etc.,

"115. **TORONTO SUBURBAN:** City of Toronto to give the Toronto Suburban a direct rapid transit line into the business centre of Toronto.

"116. **CITY OF TORONTO:** City of Toronto to give the Metropolitan (Yonge Street to Lake Simcoe) a rapid transit line into the business centre of the city.

"117. The Toronto rapid transit scheme for suburban traffic will require some such scheme as the Hydro have worked up, but I question the advisability of terminating them all at Union Station account of congestion; better to have three smaller terminals near the business centre.

"118. Should Toronto not undertake this task itself rather than add another factor to the present complication? It is a great undertaking and the detail is a city matter."

Mr. Gutelius proposes to sell the Toronto Eastern to the Oshawa Street Railway Company or make an arrangement with them to operate it, or as much of it as it appears to warrant and scrap the remainder. Toronto is to give the Kingston Road Railway a rapid city connection and take care of Ward Eight in so doing. The Toronto Eastern belongs to the Canadian National Railways at present and it is understood that the Oshawa Electric Railway is really controlled by the Grand Trunk Railway and will pass to the ownership of the Canadian National Railways, so the same owner will possess both. Mr. Gutelius proceeds to construct the Toronto-St. Catharines Line in his own way. He advocates Toronto giving the York Radial a rapid city con-



nection at Sunnyside. From Port Credit to Oakville the municipalities are to build or finance a single track line and operate it in conjunction with or by the Hamilton and Toronto lines. This means, using the Sunnyside to Port Credit line and building a single track line from Port Credit to Oakville financed by the municipalities and note particularly ("The Government to Guarantee the bonds if Toronto provides rapid city connection and Hamilton do likewise") Connection is to be made at Oakville with the Oakville to Hamilton Line of the Dominion Power and Transmission Company, which at Burlington takes the long route around the Bay into Hamilton. At Hamilton, Mr. Gutelius proposes to proceed over the Hamilton-Beamsville line to Beamsville and extend the line from Beamsville to St. Catharines, to be built or financed by the Municipalities and have it operated by the Hamilton and St. Catharines lines as can best be arranged. Note again, the Government to guarantee the bonds for the extension from Beamsville to St. Catharines. Mr. Gutelius further suggests that the City of Toronto give the Toronto Suburban, which is the Toronto to Guelph line, a rapid transit line into the business centre of Toronto and suggests that the City of Toronto give the Metropolitan a rapid transit line into the business centre of the city.

He also states that the Toronto Rapid Transit scheme for suburban traffic, will require some such scheme as the Hydro have worked up and thinks there should be three smaller terminals near the business centre rather than one at the Union Station.

He asks, should Toronto not undertake this task itself rather than add another factor to the present complication? In this I believe he is referring particularly to suburban traffic.

Mr. Gutelius has in his conclusions practically built in his own way the Toronto to St. Catharines Line, proposes it should be improved for through service, advocates giving the Toronto Suburban entrance into the city from Guelph and suggests rapid city connection for the Toronto and York radials. He goes a long way towards constructing the radial scheme in his own way, and he must have considered it a paying proposition to do so. He may or may not have considered the difference in the gauges of the various railroads that he is dealing with and does not explain how the radials can get a rapid entrance into the centre of Toronto unless they have their own right-of-way as proposed by the Hydro Engineers. It is also significant that Mr. Gutelius proposes that the Government should guarantee the bonds for the municipalities, where he proposes to build connecting links on the Toronto-St. Catharines line.

It seems to me that in constructing a rapid transit interurban line from Toronto to St. Catharines the proposal of the Hydro Engineers is a much better one from every standpoint. Mr. Gutelius was a helpful critic, who frankly tried to solve the difficulties of the transportation situation.

#### BENEFITS TO STATE OF INDIANA FROM RADIAL RAILWAYS.

Mr. R. I. Todd, President and Manager of the Indianapolis Street Railway and several interurban lines which converge at Indianapolis, is quite positive that the radial railways have done more than any other factor to develop the State of Indiana. He declares in his evidence:—

PAGE 11962. "Q. It is a thing I want to come back to later on. Following up what Mr. Commissioner Bancroft was asking you a while ago about the necessity or advantage of your radial lines in Indiana, you would be the last, I suppose, to decry the benefit of those lines to the community? You do not suggest they have injured the State at all? A. I think they have been a tremendous advantage to the State; they have developed the State more than any other factor we have there, but at the expense of the private investor."

"Q. There is no question that the community has benefitted enormously from those lines? A. There is no question whatever about that.

"Q. And the State and the community which is so served would be a different sort of State and different community if those lines were not there? A. Yes, but it has been a very expensive proposition to the man that put his money in."

PAGE 11963. "COMMISSIONER BANCROFT: Q. Are the radials assisting in the development of the country districts in that territory around Indianapolis? A. Very much.

Q. They have not drained the country? A. No, they have helped the country and are developing a considerable population of their own; people who like to get out and live in the country on a ten acre or fifteen acre or twenty acre tract and go back and forth."

Mr. Todd points out that the Indiana Radial Railways are handling live stock and find it

"good business." During the first five months of 1921 to May 31st, 1373 cars were handled bringing a revenue to the system of \$32,391. He declares that the farmers obtained the legislation making it possible to handle cars of live stock over the streets of Indianapolis. Mr. Todd states "The Farmers Association there went to the Legislature to make it a sure thing and had this Bill put through in an emergency session last summer."

**PROPOSAL TESTED IN EVERY MANNER.** The proposal of the Hydro Commission has been subjected to every test imaginable. It has been subjected to a test of car mile costs, operating ratio, earnings per mile of line and route for passenger and freight, fixed charges and other tests. Some of the evidence given was severely critical, and a great deal of the evidence helpful.

As a result, the Hydro Commission should be able to proceed in the radial project and by keeping down the capital cost because of lower prices in materials, develop the project in a safe and sound manner.

Many witnesses gave evidence of the great benefits they expected from the radials to their own municipalities. Not one of the municipalities which has approved the scheme complained or showed lack of confidence in the Hydro as trustees or in the project. Some of the municipalities are anxious about the possibility of the Provincial Government declining its guarantee of the Bonds.

The recommendations made in this report are, in my judgment, most reasonable ones, considering the mass of evidence both for and against the proposal, the reports of experts and the information gained personally by your Commissioners during their tours of investigation. The carrying out of these recommendations will be attended by great benefits to the people of the Province of Ontario.

**RESPONSIBILITY FOR DELAY.** The Inquiry has been an extended one. In one of the appendices attached to the majority report the procedure of the Commission is outlined. In fairness to the Hydro Engineers, your Commissioners ought to share to some extent, the responsibility for the length of the Inquiry. In the requisition sent to the Hydro Electric Commission asking for certain information, it was requested that the costs of operation and the revenues expected for each division, should be supplied for the first year of operation and for a five and ten year period following the first year of operation.

From the evidence it appears that the five and ten year period of operation is used in estimating probable revenues and re-valuing properties, where franchises have certain short periods to run, but may not be necessary in a case such as the radial proposals where franchises are not involved and the first year of operation is to be 1925. In addition, two of the five divisions are in operation now, without certain improvements proposed.

Without going further into this, it is quite certain that in projecting populations, revenues and costs of operation into long future periods, a great amount of work was entailed, and a field of speculation was entered whereby experts could disagree and an accurate checking up could hardly be made. It is unfair to accuse the Hydro engineers of "guessing" when they were compelled by us to enter these long future periods. And the work of the Arnold staff was extended by the same process.

**RECOMMENDATION 1. THAT THE GOVERNMENT ADOPT THE PRINCIPLE OF PUBLICLY OWNED AND OPERATED ELECTRIC RADIAL RAILWAYS FOR THE PROVINCE OF ONTARIO.**

There is ample evidence, in my opinion, that a system of radial railways such as proposed by the Hydro Electric Power Commission and in my judgment improved in some respects by the suggestions of experts testifying before the Royal Commission, will be of immense benefit to the territory involved and the province as a whole. The district to be served is the most favourable in Canada for the building of Radial Railways.

The Radial Railway Scheme proposed for Ontario consists of five divisions:

- (1) The Toronto-St. Catharines Division,
- (2) The Toronto Eastern Division,
- (3) The Toronto Suburban Division,
- (4) The Hamilton, Galt, Elmira Division,
- (5) The Niagara, St. Catharines and Toronto Division.



## DESCRIPTION OF LINES BY ENGINEER T. U. FAIRLIE OF THE HYDRO ELECTRIC POWER COMMISSION.

TORONTO EASTERN. "The Line commences at Bowmanville and extends westerly through the township of Darlington, through Oshawa and Whitby to Pickering. On this portion the original grading was done by the Toronto Eastern Railway giving a steel road as far west as Whitby. The grading, however, was completed to Pickering, but the steel was never laid on this latter portion extending west from Whitby. The location adopted by the Commission from Pickering westerly parallels in a general way the Kingston Road to the Grand Trunk crossing of the Kingston Road at Lot 13, Scarborough Township, and is located about midway between the original location projected of the Toronto Eastern and the Kingston Road, this location being considered more favourable than that projected by the original company. From the crossing with the Kingston Road the line extends westerly roughly paralleling the Grand Trunk and located a short distance north to the crossing of the branch line from Scarborough Junction to Markham and Stouffville. The line then diverges slightly roughly paralleling St. Clair Avenue to a crossing with the east branch of the Don River, then southerly through a thickly populated district of the City of Toronto to Ashbridge's Bay, over the right of way provided by the Harbour Commission into a connection at the foot of Church, Bay or York Street with the proposed uptown terminal. The estimates provide in the initial period of 1924 for the complete rehabilitation of the existing line of the Toronto Eastern Railway, and the new construction is noted in Exhibit 21 before the Radial Commission.

"It should be noted that a large amount of the capital expenditure is for the portion lying within the City limits and which is occasioned by the demand of grade separation by the City and the high speed line. To effect this certain heavy work is necessary even in the initial stages of operation, as is shown by the examination of the profile extending southerly from the upper Don branch. It is considered unnecessary for the time being to elevate the tracks on the Harbour Terminal until track conditions would warrant same, and the estimates are prepared on the lower grade line."

"TORONTO-ST. CATHARINES: The line extends westerly from a connection with the proposed uptown terminal at the foot of Bay Street, across the Harbour Commission's property, through the Exhibition Grounds to Sunnyside, thence westerly paralleling the Grand Trunk to Clarkson. From here, the line diverges slightly to the South passing through the centre of Oakville and to a proposed connection with the Hamilton Radial Railway. From Oakville the line parallels the latter to Burlington. In the event of the acquisition of this line this portion would be co-ordinated in the same. From Burlington the line extends westerly passing just south of Aldershot and effecting entrance into the City of Hamilton by paralleling the Grand Trunk right of way into the foot of James St. Through Hamilton two locations were estimated upon, one extending through on the Grand Trunk right of way providing for additional trackage, and the other an entirely independent line from any operation restrictions that the former might impose. From the east city limits of Hamilton the line extends easterly crossing the Grand Trunk at grade near Stoney Creek and roughly paralleling same through to Grimsby, where it diverges to the south and closely parallels the main highway through to a point about a mile and a half west of the Grand Trunk station at St. Catharines. Provision was made at the grade crossing of the Grand Trunk at Stoney Creek for its ultimate elimination. At St. Catharines a junction is effected with the Niagara, St. Catharines & Toronto Railway which it is proposed to use as a connecting link with the Frontier at Niagara Falls.

"NIAGARA-ST. CATHARINES & TORONTO RAILWAY. As already noted the acquisition of this system will provide a Frontier connection for the Toronto-St. Catharines Line, and, while it is intended for the time being to use the existing line between St. Catharines and Thorold, a location has been established which would eliminate many of the objectionable features which are now limiting factors in the operation of the system as a through line. The estimates provide for the necessary rehabilitation of this system to bring same up to the standard required as a through line and such other replacements or betterments as are considered necessary for the efficient operation of same. Negotiations have been conducted with certain American lines in order to effect an international connection at the Frontier, and the belief is warranted that such



may be effected, giving a direct connection with the centre of Buffalo, so that through passengers and freight may be efficiently handled from that centre to Toronto.

**"WENTWORTH-WATERLOO DIVISION.** The location extends west from the junction with the main line in the vicinity of the Desjardins Canal crossing the Grand Trunk at grade and undercrossing the cemetery and the Toronto Hamilton & Buffalo Railway. An alternative location, however, has been established which will provide for the elimination of the grade crossing with the Grand Trunk Railway. From the undercrossing of the T. H. & B. the line extends westerly up the Dundas Valley to Copetown, thence via Brockton, Sheffield to Galt, effecting a connection with the Grand Trunk Railway, Galt, Hespeler & Guelph branch, over which it is proposed to obtain running rights, and via a cross town connection with the Galt, Kitchener & Elmira branch of the Grand Trunk Railway, which it is proposed to acquire. This latter branch serves all the principal industries in Kitchener, and with slight expense can be arranged to connect with the principal industries of Galt. At Kitchener it is proposed by new construction to eliminate present operation over the main line tracks of the Grand Trunk. Below the Preston Yard of the Grand Trunk Railway across river connection is proposed in order to effect efficient train movement through Guelph via Preston to Kitchener and Galt. At Guelph a connection is proposed from a point near the Guelph Junction to the end of the line on Waterloo Road of the Guelph Radial Railway, thereby effecting a central passenger entrance into the centre of Guelph and a freight connection through the lower outskirts of Guelph with the Toronto Suburban.

**"TORONTO SUBURBAN.** It is proposed to acquire the existing line of the Toronto Suburban Railway Company extending westerly from Lambton to Guelph and the line extending from Weston to Woodbridge. Certain operations of the existing system now within the City of Toronto are essentially city operation and it is expected will be turned over to the City Transportation Commission for operation. It is intended by new construction to effect physical connection with both lines mentioned via the route of the Old Belt Line Railway in the Humber Valley with the main line extending west from Sunnyside by undercrossing the Grand Trunk Railway and ramping up to the grade elevation of the main line. This will then permit the cars of the Toronto Suburban Railway to traverse the entire distance within the urban area of Toronto at high speed."

NOTE. Included in Mr. Fairlie's summary is a resume of specifications for the various divisions.

#### DESCRIPTION OF LINES BY BION J. ARNOLD-EXHIBIT 206.

**"TORONTO-ST. CATHARINES DIVISION.** Plans for the Toronto-St. Catharines Division call for construction of a line from Toronto to Oakville acquisition of the present line of the Hamilton Radial Railroad from Oakville to Burlington and the construction of a new line from Burlington around Burlington Bay, through Hamilton to a point near St. Catharines where connection is to be made with the lines of the N.S. & T. Division."

"Connection is to be made with the Hamilton Elmira Division at Dundas Junction, about one mile north of Hamilton, so that through cars can be operated from the Galt district to Toronto. It is assumed in these estimates that arrangement will be made with the International railway whereby it will be possible to operate through passenger trains from Toronto to Buffalo via the Toronto-St. Catharines and N. S. & T. Divisions and the International Railway.

"The total road mileage included in the estimates for this division is 72.77 miles, the track mileage being shown in Table B-5.

"In the item of rent of facilities under the heading of miscellaneous expenses there is included \$30,000 per year to cover rental of a portion of the Grand Trunk Right of way in Hamilton. *There is available at the present time no information as to negotiations with the G. T. R. for the purpose of obtaining rights over this property.* However, it is estimated by the Hydro Electric Commission that an alternative location can be obtained at a cost of \$500,000 and the rental provided is placed at 6% of \$500,000 representing the maximum amount which could be justified as payment for the use of the G. T. R. property.

**"TORONTO EASTERN DIVISION.** Plans for the Toronto-Eastern Division call for construction of a new line from the foot of Bay Street in Toronto to Whitby where connection is to be made with the constructed portion of the Toronto-Eastern line from Whitby to Bowmanville, which is to be purchased from the Canadian National Railways. The section of line between Bay Street and the Don River ravine is to be double track and entirely grade separated.

In addition to the operation of an interurban passenger and freight service between Toronto and Bowmanville, it is proposed to operate a local rapid transit service from the Toronto Subway terminal to the Don ravine.

"The line as proposed is 43.83 miles long with estimated trackage as follows in 1925:

	1st Track.	2nd Track.	Yard Spurs.
New Construction .....	28.73 mi.	8.39 mi.	2.25 mi.
Purchased road .....	15.10 mi.	.....	.....
Total .....	43.83 mi.	8.39 mi.	2.25 mi.
Total single track 54.47 miles.			

"TORONTO SUBURBAN DIVISION. The Toronto Suburban System as now operated consists of the Guelph Division providing an interurban service between Guelph and the Keele St. terminal located in West Toronto; the Woodbridge division, operating between Woodbridge and the Keele St. terminal; the Weston Line, operating over the same track as the Woodbridge line, but stopping at Weston; and the Davenport Crescent and Lambton routes which are essentially street car lines operating in the outskirts of Toronto.

"Estimates shown herein are based upon continued operation of the Woodbridge, Weston, Davenport, Crescent and Lambton routes as at present. The Guelph division cars, however, are to be operated directly into the downtown subway terminal through the construction, in 1925, of a connection from Lambton to the Toronto-St. Catharines Line, at Swansea, via the old Belt Line Railroad route.

"In addition to the service now operated, the estimates include operation of a suburban service over the main line from Toronto to Islington, a distance of 10 miles.

"The track mileage now operated by the Toronto Suburban system is as follows:

	1st Track	Sidings	Spurs
Lambton to Guelph .....	46.32 mi.	2.99 mi.	0.61 mi.
Weston, Lampton, Davenport and Crescent Lines .....	10.45 mi.	0.47 mi.	.....
Weston to Woodbridge .....	7.50 mi.	0.25 mi.	.....
Total present trackage .....	64.27 mi.	3.71 mi.	0.61 mi.
Additional track from Lambton to Swansea to be constructed by 1925 .....	3.28	.....	.....
Total trackage 1925 .....	67.55 mi.	3.71 mi.	0.61 mi.

"HAMILTON ELMIRA DIVISION. The proposed plans for the Hamilton Elmira Division call for construction of a new line from Dundas Junction, a point on the Toronto-St. Catharines Division about one mile north of Hamilton, to Galt, connecting at Galt with the present lines of the Grand Trunk Railway. It is proposed to purchase the Grand Trunk Branch line from Galt to Elmira, there obtaining access to Kitchener, Waterloo and Elmira; also to acquire trackage rights over the Grand Trunk line from Galt to Guelph, thus obtaining access to Preston, Hespele and Guelph. In addition the construction of a new line from Puslinch Lake to the G. T. R. line is proposed. Operation of the Guelph Radial Railway comprising about 9 miles of local city trackage in Guelph, is included in this division.

"Excluding the Guelph Radial trackage, the length of road and track included in this division is as follows:

	1st. Track Miles.	Sidings Miles
New Construction.		
Dundas Junction to Galt .....	26.92	2.00
Connection G.T.R. line to Kitchener Street Rly. tracks.....	2.33	.....
Blair Jct.—Preston connection .....	1.36	.....
Connection from G.T.R. to Guelph Radial .....	0.78	.....
Puslinch Lake Line .....	3.07	0.14
Total new construction .....	34.46	2.14



G. T. Rly. lines to be purchased .....	25.05	6.41
Total lines owned .....	59.51	8.55
G.T.R. lines over which trackage rights are to be acquired .....	14.01	3.35
Total lines operated .....	73.52	11.90

"N. S. & T. DIVISION. The Niagara, St. Catharines and Toronto Railway is an electrically operated railroad handling both a freight and a passenger business in the territory surrounding St. Catharines and Niagara Falls, Ontario. The mileage of the various branches are as follows:

Main line, Port Dalhousie to Niagara Falls .....	16.74	miles
Welland Division, Thorold to Port Colborne .....	18.53	"
Lake Shore Division, St. Catharines to Niagara on Lake .....	12.18	"
St. Catharines local lines .....	9.59	"
Niagara Falls local lines .....	4.63	"
Total Main Line.....	61.67	"
Industrial sidings .....	13.47	"
Yard and passing sidings, .....	8.23	"

Total mileage .....83.37

"This railway interchanges freight with the Toronto, Hamilton & Buffalo Ry., Michigan Central R.R., Grand Trunk Ry., and Wabash R.R., and serves as a terminal railway for most of these roads.

"It is proposed to purchase this road and to connect it with the Toronto-St.Catharines Division at St. Catharines. Thus the Hydro Electric Railways will secure an outlet to the Frontier, Thorold and Niagara Falls, and also secure the advantages of an established freight terminal railway having sidings to most of the plants in this important industrial area.

"The N. S. & T. railway at present is single tracked, and inasmuch as it is proposed to operate the through limited service from Toronto over this line to Niagara Falls, it is necessary to double track the line from St. Catharines to Thorold in 1925 and to double track the remainder from Thorold to Niagara Falls in 1930. The cost of this track is included in capital cost."

**COSTS OF CONSTRUCTION.** The Costs of Construction have not been questioned by any expert called to give evidence. It was generally agreed that ample money had been provided to build the railways proposed by the Hydro Commission.

The cost of construction, as submitted to the Government, and included in the Statement of July 6th, 1920, amounts to \$51,870,231. This included the cost of the Port Credit to London Division. In the estimates submitted to the Royal Commission, the Toronto-Guelph division is definitely substituted for the Port Credit to London Line.

The cost of construction for the five divisions submitted by the Hydro Engineers during the investigation, amounts to \$45,644,139, or a reduction of \$6,226,092.

The cost of construction submitted by the Arnold engineers during the investigation, totals \$40,753,500, or a reduction of \$11,116,731, from the total as submitted to the Government.

The Arnold estimate of \$40,753,500 is without the addition of a subway to be constructed in Toronto. It is more feasible at present, in my opinion, for the Hydro Commission to arrange with the City Transportation Commission, for a means of bringing passengers North from the Bay Street Terminal. These estimates of cost are for the first year of operation, 1925.

A comparison is made between the estimates of capital cost showing the reductions:

CAPITAL COST  
FIRST YEAR OF OPERATION — 1925

## RADIAL RAILWAY DIVISIONS

Government Statement of July 6th. 1920

Cost as submitted to Government for approval and contained in Government Statement of July 6th. 1920.

Cost as submitted to Royal Commission by Hydro Engineers during investigation.

Cost as submitted to Royal Commission by Blon J. Arnold &amp; Staff and contained in Arnold's Report not including subway Terminal in Toronto.

## “(1) TORONTO, PORT CREDIT, ST. CATHARINES LINE:—

Estimated cost of construction as revised by Mr. W. S. Murray, Consulting Engineer of New York City and brought down to date.

(2) TORONTO EASTERN RAILWAY:—  
(Toronto to Pickering, Whitby, Oshawa and Bowmanville); Estimated cost of construction including right-of-way and partial grading to be acquired from Dominion Government at a cost of \$706,000 (Estimates made Sept. 1919)

## (3) THE HAMILTON, GALT, GUELPH, ELMIRA LINE:—

Estimated cost of construction. (Estimates made November, 1919)

(4) THE PORT CREDIT TO LONDON LINE:—  
Estimated cost of construction. (Estimates made in 1916)(5) THE TORONTO SUBURBAN LINE:—  
(Toronto to Woodbridge and Toronto to Guelph)(6) THE NIAGARA-ST. CATHARINES LINE:—  
(Niagara Falls, St. Catharines and Port Colborne.) These two systems to be acquired from the Dominion Government at a cost of

\$51,870,231

\$45,644,139

\$40,753,500

REDUCTION IN CAPITAL COST  
FIRST YEAR OF OPERATION—1925

Capital cost as submitted to Government by Hydro Commission .....

\$ 51,870,231

Capital cost as submitted to Royal Commission by Hydro Engineers .....

\$ 45,644,139

## REDUCTION IN COST

Capital cost as submitted to Government by Hydro Commission .....

\$ 6,226,092

Capital cost as submitted to Royal Commission and contained in Arnold Report. Exhibit 206 which includes subway Terminal in Toronto .....

\$ 51,870,231

\$ 44,558,500

## REDUCTION IN COST

Capital cost as submitted to Government by Hydro Commission .....

\$ 7,311,731

Capital cost as submitted to Royal Commission and contained in Arnold Report. Exhibit 208 not including subway terminal in Toronto .....

\$ 51,870,231

\$ 40,753,500

## REDUCTION IN COST

Capital cost as submitted to Government on the N.S. &amp; T. Division is taken as of 1926, this being the nearest to 1925 in the exhibit, where five year periods are used as of 1921-1926-1931.

One great difference in Capital Cost as between the amount submitted to the Government and the cost of the scheme as submitted to the Royal Commission is the definite elimination of the Port Credit to London Division and the inclusion of the Toronto Suburban Division. Other major reductions as contained in Hydro exhibits and Arnold Reports are due to changes in construction and right-of-way and declining costs during the past year.



There cannot be any reasonable criticism of the Hydro engineers for changing at various times, their estimates of capital cost. It is proposed to save nearly \$3,000,000 by using the Grand Trunk Railway right of way through Hamilton instead of adhering to the original plan of entrance into and through Hamilton on a separate right of way. It is evidence of the spirit of co-operation, to use the right of way of the National Railways to save construction costs. It is obvious that the Hydro Commission contemplated this when the Grand Trunk Railway was a privately owned corporation, and the plan was made possible by developments which have taken place since the original estimates were made, whereby the Grand Trunk Railway has passed into the possession of the Canadian National Railways.

During the last few years, cost of construction mounted upward until the peak was reached in the latter half of the year 1920. Passenger and freight rates changed by various increases being made.

These considerations, among others, compelled the Hydro engineers to bring their estimates up to date during the investigation.

The Arnold engineers, who submitted their report at a much later date, were able to take advantage of lower costs.

It has been urged that the cost of construction per mile of line is too high, compared with other electric railways. In the cost of construction, the fundamental differences between the proposal submitted to your Commissioners and other electric railways appear strongly.

The Hydro Commission proposes to construct the Toronto-St. Catharines division through Toronto to the terminal, entirely on its own right of way, and similarly the Toronto Eastern Division. The Toronto-St. Catharines division is to have its own right of way through Hamilton alongside the Grand Trunk Railway tracks, with a terminal in Hamilton.

The heaviest expenditures per mile of route are for construction inside the City of Toronto and Hamilton. From the west side of the Humber to the south end of the upper Don Bridge, a distance of 11.29 miles of route, Engineer Fairlie states, in Ex. 139, that the total cost is \$7,694,739, or \$681,553 per mile of route.

Mr. Fairlie also states in his evidence "In the Hamilton section for the 4.33 miles it is \$1,453,250 in the present report" or approximately \$325,623 per mile of route.

Comparisons have been attempted during the Inquiry by taking the total cost of the Hydro Project, dividing it by the route mileage to obtain a cost per mile, and then comparing the result with the cost per mile of interurban roads in the United States. A similar comparison has been attempted by taking the divisions separately and comparing them with other electric railways. Such a comparison is absolutely unsound, although it evidently greatly impressed the Commissioners who signed the majority report.

The unsoundness is at once apparent when it is considered that the interurban railways entering Detroit do so over the city street railway tracks, and that the interurban railways enter Cleveland over the city surface tracks. This is also the case in Indianapolis, Washington, Baltimore, Toledo and the general practice in most United States cities. With rare exceptions, the costs of construction of United States interurban railways, are costs for constructing those railways outside of city boundaries. The factor, in my opinion, preventing interurban electric railways in the United States from obtaining entrance into the main city terminals over their own right of way, is the cost and difficulty of procuring a right of way after the city has grown beyond a certain stage.

A similar condition will be met by Toronto and Hamilton if the present opportunities are not grasped.

In Ex. 139, Engineer Fairlie gives the mileage and expenditures in Toronto East and West: From Ex. 139, "Cost of proposed Hydro Electric Power Commission Railway through Toronto from West side of Humber to South end of Upper Don bridge.

	As submitted to Municipalities.	
	Miles	Amount
"Toronto-East .....	5.9	\$3,462,812
Toronto-West .....	5.36	4,195,651
<b>TOTAL .....</b>	<b>11.32</b>	<b>\$7,658,463</b>

NOTE:—This total should read 11.26. This is probably due to a typographical error in Ex. 139 wherein 5.9 should be 5.96.

		As submitted to Municipalities.	
		Miles	Amount
"Toronto-East .....		5.96	\$3,462,812
Toronto-West .....		5.25	5,882,242
<b>TOTAL .....</b>		<b>11.21</b>	<b>\$9,345,054</b>

As submitted to Radial Commission as  
1924 programme.

		Miles	Amount
"Toronto-East .....		6.04	\$3,754,669
Toronto-West .....		5.25	3,940,068
<b>TOTAL .....</b>		<b>11.29</b>	<b>\$7,694,737</b>

"Approximate cost of work submitted to Radial Commission if price had not increased from date of estimates submitted to municipalities:

		Amount.	Increase due to Increased prices.
"Toronto-East .....		\$3,229,015	\$525,654
Toronto-West .....		3,073,253	1,866,815
<b>TOTAL .....</b>		<b>\$6,302,268</b>	<b>\$2,392,469</b>

"Approximate decrease due to difference in construction quantities.

Toronto-East .....	\$ 233,797	(Due partly to cutting out grade separating at six crossings)
Toronto-West .....	\$1,122,398	(Due to cutting out steel viaduct and subway through Exhibition)

**TOTAL .....** **\$1,356,195**

In one of the appendices attached to the majority report, Price Waterhouse & Co., compare the cost of construction per mile of route for the proposed radials, with four interurban railways in the United States, under "Estimated cost or book value of Ways, Structures, Equipment, etc."

	Cost per mile.
Proposed Hydro Electric Radials (all lines)	
Year 1925. (Miles of route, 327,797) .....	\$139,248 00
Washington, Baltimore and Annapolis,	
Year 1919. (Miles of route, 61.92) .....	\$175,116 00
Lake Shore Electric Railway of Ohio,	
Year 1919. (Miles of route, 151.49) .....	\$ 93,840 00
Union Traction System of Indiana,	
Year 1919. (Miles of route, 427.20) .....	\$ 54,738 00
Mr. Rifenberick, in his report, states that the cost per route mile for the Detroit-Munro-Toledo line in 1920, is .....	\$132,280 00
The Arnold engineers in Ex. 208 place the cost per mile of route for lines owned by Hydro Commission in the proposal as, .....	\$129,212 00

In a comparison following, made by Price Waterhouse Company, expenditures for 11.29 miles in Toronto and 4.33 miles in Hamilton are taken out of the capital cost, to obtain an approximate comparison with several other electric railways. This is not all the expenditure to be made in Toronto and Hamilton, but portion relating to capital cost which could be segregated. Approximately, it reduces the cost \$23,000 a mile over the whole system. If this reduction is applied to the Arnold estimate Exhibit 208, of \$129,212, the cost per mile of route would be \$106,212 for the radial scheme.



STATEMENT SHOWING ESTIMATED COST OF THE PROPOSED HYDRO ELECTRIC RADIALS PREPARED FROM ESTIMATES SUPPLIED  
THE RADIAL RAILWAY COMMISSION BY THE HYDRO ELECTRIC POWER COMMISSION, AFTER MAKING CERTAIN  
DEDUCTIONS; AND COMPARING THE REVISED COSTS WITH THOSE OF CERTAIN LINES IN THE UNITED STATES.

Year .....	Proposed Hydro-Electric Radials—All Lines	Washington, Baltimore and Annapolis Railway	Lake Shore Electric Railway of Ohio	Union Traction System of Indiana	Detroit, Monroe and Toledo Short Line Railway
Route Miles .....	1925 312.177	1919 61.92	1919 151.49	1919 427.20	1920 48.12
CAPITAL COST					
COST PER MILE OF	\$36,496,097 00	10,843,283 00	14,161,653 00	23,384,002 00	6,365,402 00
ROUTE .....	116,900 00	175,116 00	93,840 00	54,738 00	132,282 00
	1.		2.		3.

NOTES:—1. Items marked 1. represent Hydro Electric Power Commission estimates, revised as follows:—

Estimated cost of Construction as submitted to the Radial Railway Commission .....

Less—That portion of the cost of entering Toronto on the Toronto, Hamilton, St. Catharines  
Line and the Toronto Eastern Line, set forth in Exhibit No. 139 .....

That portion of the cost of entering Hamilton on the Toronto, Hamilton, St. Catharines  
Line mentioned by Mr. T. A. Fairlie in his evidence, page 11, 272 .....

Route Miles	Cost
327.797	\$45,644,084 00
11.29	7,694,737 00
4.33	1,453,250 00
15.62	\$9,147,987 00
312.177	\$36,496,097 00

Leaving as above .....

2. Items marked 2. represent a line that is entirely single-track.

3. Items marked 3. represent data taken from R. B. Rifenberick's report prepared for the Radial Railway Commission. Exhibit No. 228,  
page 45.

It will be noticed that interurban lines in the United States, as mentioned, without the large terminal costs, and built when prices were much lower, do not make the Hydro costs suffer by comparison; and it was generally admitted that in construction and equipment the proposal is of the highest class. Estimated costs are reasonable and sound, and construction costs, being on a downward trend, will help to further strengthen the estimates.

## REVENUE AND SURPLUS

The evidence of Chief Engineer Gaby of the Hydro Electric Power Commission and other officials of the Commission is that the system as a whole will be more than self-supporting the first year, earning a net surplus the first year of operation in 1925

This view is strongly supported by Bion J. Arnold, Consulting Engineer of Chicago, one of the most eminent experts called to give evidence before the Commission. Mr. Arnold was assisted by a staff of officials, the chief of whom, Mr. Fred Sager, gave evidence during the inquiry. Mr. Arnold and his assistants made the most thorough study of the scheme and comprehensive report thereon, of any expert who appeared before the Royal Commission, other than the engineers of the Hydro Commission.

The Engineers of the Hydro Commission and the members of the Arnold Staff, to obtain their various estimates, studied the territory carefully, the population tributary to the proposed radials, the industries, made freight surveys, studied the passenger movements at various points, made counts of the people riding at various points to obtain estimates of riding and have analyzed carefully, all those details which would make estimates a real guide on which to base judgment.

A mass of evidence has been given by various experts from the United States about the earnings per mile of line or route on various interurban electric railways. The engineers of the Hydro Commission and the Arnold Staff claim, that the earnings are not comparable unless the various physical advantages in the proposal for Ontario are considered. Their claim is well founded and justified by the evidence.

The revenue and surplus in each of the Hydro and Arnold estimates for the periods 1925, 1930, and 1935 are here shown, followed by a comparison of earnings per mile between the Hydro and Arnold estimates and interurban railway in the United States. Taking into consideration the advantages of a right of way into main terminals such as Toronto and Hamilton for the Hydro project with many other advantages outlined in this report, it will appear how reasonable are the expectations in connection with the Hydro scheme.

### REVENUE AND SURPLUS FIRST YEAR OF OPERATION—1925

Submitted by Hydro Engineers to Royal Commission and contained in Exhibits 51, 34, 67, 55, 69.

	Operating Revenue	Surplus
All Divisions .....	\$8,083,881	\$807,642
Submitted by B. J. Arnold and Staff, and contained in report Exhibit 206, including subway terminal in Toronto.		

	Operating Revenue	Surplus
All Divisions .....	\$7,507,000	\$252,000
Submitted by B. J. Arnold and Staff, and contained in report Exhibit 208 not including subway terminal in Toronto.		

	Operating Revenue	Surplus
All Divisions .....	\$7,086,000	\$213,000

The revenue and surplus included in statement above for the N. S. and T. Division as submitted by the Hydro Engineers are for 1926 being the nearest estimate to 1925 in the exhibits. The five year periods on this line were taken as 1921-1926 and 1931 in Hydro estimates.



REVENUE AND SURPLUS  
ESTIMATES OF OPERATION DURING YEARS  
1930—1935.

Submitted by Hydro Engineers to Royal Commission and contained in Exhibits 51, 34, 67, 55, 69.

	1930		1935	
	Operating Revenue	Surplus	Operating Revenue	Surplus
All Divisions .....	\$9,818,605	\$1,493,089	\$11,264,355	\$1,774,471
Submitted by B. J. Arnold and Staff, and contained in report Exhibit 206, including subway Terminal in Toronto.				

	Operating		Operating	
	Revenue	Surplus	Revenue	Surplus
All Divisions .....	\$9,141,000	\$ 796,000	\$10,880,000	\$1,037,000
Submitted by B. J. Arnold and Staff, and contained in report Exhibit 208, not including subway Terminal in Toronto.				

	Operating		Operating	
	Revenue	Surplus	Revenue	Surplus
All Divisions .....	\$8,628,000	\$ 698,000	\$10,254,000	\$ 905,000

The Hydro estimates for Toronto Eastern are for the years 1929-1934, and these have been included in total above as of 1930-1935, to make a comparison with Arnold's estimates of 1930-1935. The Hydro Toronto Suburban estimates are for periods 1921-1925-1930, and the totals for 1930 have been used for both 1930 and 1935 in above table. The Hydro Niagara St. Catharines and Toronto estimates are for periods 1921-1926-1931 and the totals in the 1931 estimates have been used in table above for 1930 and 1935. The total sum provided for all divisions in the Arnold report, Exhibit 206, as sinking fund for 1935, is less by \$14,750 than the amount provided by Hydro estimates for 1935, including the amount provided in 1934 on Toronto Eastern and in 1931 on the Niagara St. Catharines and Toronto Division, and using these amounts for 1935. The difference will affect the relation of the surpluses shown above.

# EARNINGS PER MILE OF LINE OR ROUTE FIRST YEAR OF OPERATION—1925.

RADIAL RAILWAY DIVISIONS	Miles of Line Operated	Revenue Per Mile of Line or Route			
		Interurban Earnings	Suburban Earnings	Passenger Earnings	Total Earnings
Proposed Hydro-Electric Radials (Analysis by Price, Waterhouse Co.) .....	327.797 route miles			15,064	820
Extract from Exhibit 206 Arnold Report, Table No. 2 Showing "Analysis of Revenue Estimates per mile of line" (Total without duplications) (C) 1925					24,663
	330 route miles				
	Interurban	Local and Suburban			
Toronto-St. Catharines .....	74	10 (a)	18,900	33,700	500
Toronto-Eastern .....	44	7 (a)	10,200	93,300	500
Toronto-Suburban .....	55	30 (b)	5,200	14,000	200
Hamilton-Elmira .....	73	9	8,100	11,800	300
N. S. & T. ....	48	14	12,900	16,800	800
Total .....	294	70	\$11,600	\$27,400	\$ 400
Total without Duplications (c) ...	288	64		\$ 7,800	\$22,800

- (a) Included also in interurban mileage.  
 (b) 10 miles also included in interurban mileage.  
 (c) All mileage figures represent mileage operated by each line and each class of service. On each division, both revenue and mileage are calculated through to the primary or secondary terminal. So far as mileage is concerned, therefore, the divisions overlap. Thus the Toronto Suburban operates over the Toronto-St. Catharines Division from Swansea to Toronto and the Hamilton-Elmira operates over Toronto-St. Catharines tracks from Dundas Junction to Hamilton. The mileage "Total without duplication" eliminates this overlap so that the total revenues per mile apply to the actual total mileage of the system."



EARNINGS PER MILE OF ROUTE OF PROPOSED HYDRO RAILWAYS COMPARED  
WITH INTERURBAN ELECTRIC RAILWAYS IN THE UNITED STATES

RADIAL RAILWAYS	Route Miles	Year of Operation	Total Passenger Earnings	Freight	Miscellaneous	Total
Proposed Hydro Electric Radials (analysis by Price, Waterhouse & Co.)	327.797	1925	15,064	8,779	820	24,663
Proposed Radials, Extract from Table No. 2. (Arnold Report, Exhibit 206 including subway terminal in Toronto)	330.	1925	14,600	7,800	400	22,800
Proposed Radials, Extract from Exhibit 208, Arnold Report, (not including Subway Terminal in Toronto)	330.	1925	14,157	7,315 (Includes miscellaneous)	526	21,472
Washington, Baltimore & Annapolis	61.92	1919	31,777	2,712	1,246	35,015
Washington, Baltimore & Annapolis (Analysis by Price, Waterhouse & Co.)	61.92	1920	28,885	3,659	1,246	33,790
Chicago, North Shore & Milwaukee; C. E. Thompson, Assistant to the President—Evidence pages 7767-8	104 (including Branches)	1919	29,202	2,321	658	32,181
Detroit, Munroe & Toledo, R. B. Rifenberick, Ex. 228	58.41 Freight	1920	34,349	4,533	424	39,306
Detroit, Munroe & Toledo, R. B. Rifenberick, Ex. 228	51.72 Passenger	1920	22,915	6,123	1,095	30,941 *
Detroit, Jackson & Chicago, R. B. Rifenberick, Ex. 228	106.74 Freight	1920	12,512	3,488	717	16,993 *
Union Traction Co. of Indiana, R. B. Rifenberick, Ex. 228	99.07 Passenger	1920	11,945	3,467	1,057	16,469
Terre Haute, Indiana and Eastern Traction Co. Terra Haute Indianapolis Line, R. B. Rifenberick, Ex. 228	72.04	1920	9,511	1,809	1,002	12,322
Northern Ohio Traction Light Co. Analysis by Price, Waterhouse & Co.	172.70	1919	33,135	2,011	1,404	35,146
Lake Shore Electric Railway, R. B. Rifenberick, Ex. 228	171.49	1920	10,838	4,380	1,404	16,622
Aurora-Elgin-Chicago, C. E. Bailey's Exhibit 175	64.	1919	18,118	2,486	2,605	23,209
Rapid Railway System,—Main Line Detroit United Lines, R. B. Rifenberick, Ex. 228	75.07 Passenger	1920	16,024	2,287	1,918	20,396 *
	79.07 Freight					

\* These totals apparently include small miscellaneous items not specified above.

**PASSENGER EARNINGS:** The comparison previously made indicates the reasonable expectations of the Hydro engineers and the Arnold engineers in passenger earnings for 1925. The total population to be served by the radials has been carefully estimated, and the increases allowed for future years based on a knowledge and study of the territory. The projecting of populations into the future by periods, gave great scope for disagreement between experts. Most of the evidence given on interurban passenger traffic was measured in terms of per capita earnings, or, how much in dollars and cents per year for each person included in the population served, is earned on electric railways in operation, as compared with the expectations of the Hydro engineers for this project. There is not much dispute about the rule, for making estimates of earnings for electric railways by using  $2\frac{1}{2}$  miles on each side of the railway as a basis, and the population in that area as tributary.

There is dispute as to whether main terminal populations should be excluded or included, or what portion should be included.

Mr. T. A. Wilkinson, one of the engineers of the Hydro Commission, presented in Exhibit 220, a comparison of interurban lines between a Detroit-Cleveland district covering electric interurban railways, and a district including all the divisions of the proposed radials and the high speed electric line of the International railway to Buffalo. Ex. 220, a map showing all the lines included, is attached as an appendix to this report.

Mr. Wilkinson explains in his evidence, the object of the table Ex. 221, accompanying the map, as follows:

PAGE 11386.

"A. The object of the table is to make a comparison of the interurban revenues, per capita, and in other units, of the system which was selected, as the Detroit, Cleveland combination of lines which was selected as the most comparable system; the lines comprising that system do not include in their revenue statement and in their interurban earnings, as reported the revenue of city mileage; in all cases the interurban operation over the city tracks, the interurban companies or electric companies, the fares are taken in the city, and in one case the suburban section outside the city, are taken by the city company; there is no revenue accruing on the mileage of the main terminal to the interurban company. Therefore in order to establish a comparison I have limited the figures for the Hydro System to the amount of revenue earned on the equivalent basis....."

PAGE 11387

"Q. Then taking that system have you ascertained the population tributary to those lines, series of lines, and on what basis of area has that tributary population been taken? A. The population estimate has been made for each line or division, each system included in the Detroit-Cleveland, that is each line a population estimate has been prepared.

Q. What is the distance on each side of the line?

A. On the basis which has been used in the Hydro estimate of  $2\frac{1}{2}$  miles on each side of the line."

In the table, Exhibit 221, the engineer first makes a comparison of per capita earnings, based on the population of the Detroit-Cleveland combination, leaving out the populations of the main terminal cities, Detroit and Cleveland, with a "Hydro System and International Railway" combination leaving out the populations of Toronto and Buffalo, and in a second statement (Exhibit 223) he includes all the terminal populations to obtain a comparison of interurban earnings per capita between the two combinations.

In Exhibit 221 it is shown that the earnings per capita for the "Hydro System and International Railway (High Speed Line)" is \$7.77 and for the Detroit-Cleveland combination \$8.12. In the second comparison, Exhibit 223, the earnings per capita on the "Hydro System and International Railway (High Speed Line)" is \$2.33 covering a population of 1,650,245 and in the Detroit-Cleveland combination \$3.25 for a population of 2,996,381.

The comparison made of passenger earnings was the most extensive of any presented during the investigation.

The tables are included in detail.



EXHIBIT 221.  
HYDRO RADIAL RAILWAYS  
COMPARISONS JUSTIFYING VARIOUS ESTIMATES  
Submitted to  
RADIAL RAILWAY COMMISSION  
INTERURBAN PASSENGER SERVICE

SYSTEM	Year	Interurban Route Miles	Population Served	Interurban Revenue	Population Per Mile	Revenue Per Mile	Revenue Per Cap.
WHOLE HYDRO SYSTEM .....	1925	271.	422,502	2,972,815	1,559	10,970	7.04
Detroit Cleveland .....	1920	598.43	1,205,806	9,794,173	2,032	16,504	8.12
Northern Ohio Traction .....	1920	131.23	465,721	3,372,446	3,549	25,699	7.24
TORONTO-ST. CATHARINES, HAM- ILTON-WATERLOO & GUELPH, NIA- GARA, ST. CATHARINES AND TOR- ONTO .....	1925	181.4	357,143	2,548,474	1,973	14,049	6.89
Northern Ohio Traction .....	1920	131.23	465,721	3,372,446	3,549	25,699	7.24
TORONTO, ST. CATHARINES—Whole Line .....	1925	64.	197,275	1,123,451	3,082	17,554	5.69
Northern Ohio Traction .....	1920	131.23	465,721	3,372,446	3,549	25,699	7.24
Northern Ohio Traction, Cleveland to Canton only .....	1920	52.	345,153	2,027,963	6,638	38,999	5.88
Lake Shore Electric—Cleveland Division TORONTO, ST. CATHARINES—Tor- onto to Hamilton only .....	1920	60.	87,715	926,760	1,462	15,446	10.57
N. O. T. Cleveland to Akron .....	1925	40.	153,315	834,721	3,833	20,868	5.45
TORONTO EASTERN .....	1920	28.	240,082	1,329,039	8,574	47,466	5.54
Detroit Jackson & Chicago .....	1925	37.79	31,208	328,000	828	8,680	10.51
HAMILTON, GUELPH, ELMIRA .....	1920	95.1	112,120	1,170,359	1,179	12,307	10.44
Northern Ohio, South of Akron only....	1925	66.7	97,424	762,447	1,461	11,430	7.83
Niagara, St. Catharines & Toronto .....	1920	103.	225,633	2,043,407	2,190	19,839	9.06
	1920	50.7	52,834	431,547	1,042	8,512	8.16

HYDRO SYSTEM AND INTERNATIONAL RAILWAY—HIGH SPEED LINE compared with—DETROIT-CLEVELAND COMBINATION.					Revenue Per Cap.
HYDRO & INTERNATIONAL					
Hydro System (1925) .....	Interurban Earnings	Population Served	Revenue	Per Cap.	
High Speed Line (1920) .....	\$2,972,815	422,502	7.04		
	864,493	70,968	12.20		
Cleveland-Detroit:					
D. U. R. Lake Shore N. O. T. (1920)	\$3,837,308	493,470	7.77		
	\$9,761,195	1,205,806	8.12		

## "EXHIBIT 223

HYDRO SYSTEM AND INTERNATIONAL RAILWAY  
(HIGH SPEED LINE)compared with  
DETROIT-CLEVELAND COMBINATION

1. Hydro and International	Interurban Revenue	Population Served	Revenue per cap.
Hydro System, 1925 .....	\$2,972,815	422,502	\$7 04
High Speed Line, 1920 .....	864,493	70,968	12 20
	<hr/>	<hr/>	<hr/>
	\$3,837,308	\$493,470	\$7 77
Add Buffalo (1920) .....	.....	506,775	.....
		<hr/>	<hr/>
		1,000,245	3 84
Add Toronto (1925) .....	.....	650,000	.....
		<hr/>	<hr/>
		1,650,245	2 33
2. Detroit-Cleveland			
D.U.R. Lake Shore N.O.T. ....	.....	1,205,806	8 12
Add Cleveland (1920) .....	.....	796,836	.....
		<hr/>	<hr/>
		2,002,642	4 88
Add Detroit (1920) .....	.....	993,739	.....
		<hr/>	<hr/>
		2,996,381	3 25
Interurban Revenue .....	\$9,762,195	.....	.....

To obtain the estimates of suburban earnings the engineers of the Hydro Commission and the Arnold Staff had "counts" made of passenger travel in the eastern portion of Toronto and at Sunnyside; had the advantage of ascertaining the traffic on the three divisions of the Toronto and York Radials, north, east and west of the city; studied most carefully the loading of the cars, and presented in detail the results of these studies. Heavy suburban traffic is in existence now, and the proposed scheme of radials will develop it greatly. There is no serious evidence to refute the great possibilities of suburban traffic around Toronto. The radials will have the immense advantage of being able to provide a rapid suburban service from and to the Toronto terminal.

To show the care used in estimating future populations, the Hydro Commission presented Exhibit 226 to show estimates made and actual populations in certain places for 1921.

## "EXHIBIT 226.

## POPULATION OF HYDRO RADIAL TOWNS.

COMPARISON HYDRO ESTIMATED POPULATIONS FOR 1921. WITH RETURNS RECEIVED FROM MUNICIPAL CLERKS SUBSEQUENT TO ESTIMATE.  
URBAN MUNICIPALITIES.

	Estimated.	Actual.
"Bowmanville .....	3,050	3,250
Burlington .....	2,400	2,438
Humberstone .....	1,400	1,552
Mimico .....	3,200	4,187
Oakville .....	2,900	3,120
Port Credit .....	900	1,044
Weston .....	2,650	3,104

## TOWNSHIP MUNICIPALITIES.

"Beverley .....	3,100	3,256
Barton .....	6,400	6,742
Chinguagsony .....	3,200	3,351
Darlington .....	3,450	3,541
Eramosa .....	2,200	2,234
West Flamboro .....	2,400	2,557
East Flamboro .....	2,550	2,624
Humberstone .....	1,900	1,936
Nelson .....	2,600	2,827
Pelham .....	2,600	2,683
Puslinch .....	2,250	2,327
Pickering .....	4,150	4,457
Saltfleet .....	4,300	4,519
East Whitby .....	3,300	3,747
Whitby .....	1,600	1,785"

**FREIGHT EARNINGS.** In the comparison of earnings previously made it is clear that the Hydro engineers and Arnold engineers expect to develop freight earnings in excess of any interurban railway mentioned in the table. This is reasonable considering the evidence from every standpoint. The railways are to be built and thoroughly equipped to carry on a regular freight business. Two of the divisions are in actual operation, the Niagara Central Lines and the Toronto-Guelph Suburban Railway.

The Niagara Central division hauled 355,144 tons of freight over the lines in 1919, according to the evidence of Mr. Arnold.

Mr. Carroll Bailey, of the J. G. White Engineering Corporation, states in his report, Ex. 175, in explaining that in 1919 the Niagara Central Lines obtained a freight revenue of \$305,515, and in 1920 of \$310,698 exclusive of mail, express and miscellaneous freight:—

"The comparatively large freight earnings are due to the railway's advantageous location near numerous industries, and to an arbitrary division of the through rate between it and the connecting railways near Welland, where the large portion of the tonnage is delivered, and received, giving the longest haul possible to the Niagara. St. Catharines and Toronto Railway, and giving these connecting railways access to plants not otherwise reached." The Niagara Central lines and Toronto Suburban Railway will be connected to a system of five divisions.

In addition, the expectations of freight are based upon extensive surveys made by members of the staff of the Hydro Commission, of freight movements in the territory, confidential canvasses made of industries in the territory as to the freight business Hydro Radials might be expected to get, the development of new business, interchange of freight with steam railway lines, the acquisition of the Galt-Kitchener-Elmira line from the Grand Trunk Railway thereby providing a direct frontier connection for Kitchener, Elmira, Preston and Hespeler through Hamilton, and many other details considered relevant by the engineers.

The Arnold staff made a survey of their own to check the Hydro freight estimates, and during the investigation another freight survey was made under the direction of the Hydro engineers to again check freight estimates.

Several errors were found in the original freight surveys of the Hydro officials and these were later checked again by the Arnold staff and the net surplus was reduced thereby in the Arnold report by \$34,450.

Not one of the experts suggested that anything more could be done than the Hydro engineers and Arnold engineers had done to more thoroughly do the work. The experts who were called in to give evidence had the full advantage of all the information given in evidence by Messrs. Gaby, Hewson, and Fairlie.

There was great doubt expressed, as to whether the Hydro Commission could get for the radials an interchange of freight traffic with the Canadian National Lines. This is a very important point, and Mr. Gutelius expressed grave concern about the "onerous nature" of the provisions regarding any interchange of freight traffic which may be included in the agree-



ment to purchase the three divisions included in the Radial scheme. Hon. Dr. Reid, Minister of Railways, in his evidence, indicates how needless are the fears of the experts and how well-founded are the expectations of the Hydro engineers in this respect.

PAGE 2427 F. P. GUTELIUS. "Q. You said something about an agreement having yet to be made—I just want to follow that up—between the Government who are selling or propose to sell this property to the Hydro. Just explain what you mean in that connection? A. In Dr. Reid's letter to Sir Adam Beck, quoted in Mr. Murray's report, he says:

"In order that the road be constructed as a feeder for the Canadian National Railway System as originally intended." "Q. Yes? A. Now, my knowledge of Dr. Reid—I served under him for some time as Acting Minister of Railways, tells me he meant that very thing, that when the time comes to make the bargain for the transfer of this piece of unfinished railway to the Hydro Electric people he will insert a clause that will make that a feeder to the Canadian National for whatever it is worth, and that is why I say you should know what that bargain is before you do anything. He might tie it up where they were originally going to make the connection and keep it out of town entirely. They originally intended this branch line to start at a point east of Ward 8 and make a connection with the main line of the Canadian Northern that may be contemplated in this."

PAGE 11643. "Q. Doctor Reid, you are the Minister of Railways and Canals in the Dominion Government? A. I am.

PAGE 11648. "Q. What has been suggested, and may I say that perhaps the main reason for troubling you to give any evidence is this—it has been suggested that when the new line of the Hydro Radials is built through from St. Catharines to Bowmanville, the Hydro Radial line will be entitled to compete for traffic with the National Railway, which the Grand Trunk will then be, I assume, and that it can carry its stuff, or its freight, from the Niagara Central Railway through over its road right to Bowmanville, and there hand it over to the other, but that the National lines, whether Grand Trunk or former Canadian Northern, would not be required to be fed by it with that freight at all until it got to Bowmanville?"

"A. Well, I don't know that we went really into details, but my understanding would be this: that would be a railway from St. Catharines to Bowmanville: THEY WOULD HAVE THE RIGHT TO CARRY THEIR TRAFFIC ORIGINATING ON THEIR LINE THE FULL LENGTH OF THEIR LINE. OR TAKE AS MUCH HAUL OUT OF IT AS THEY COULD, AND THEN GIVE IT TO US, AND WE WOULD CARRY IT ON TO ITS DESTINATION; AND THE SAME WAY IF WE BROUGHT TRAFFIC FOR ST. CATHARINES SAY, WE WOULD TAKE IT ALL THE WAY TO ST. CATHARINES AND IF WE HAD TO USE THEIR LINE TO SHUNT IT INTO THEIR PLACE, OF COURSE, THE HYDRO ELECTRIC WOULD TAKE IT FROM US THERE.

"Q. You would carry all the freight on your line; running to Niagara Falls on the Grand Trunk, you would not hand it over to the Toronto-St. Catharines or to the Niagara Central Railway? A. For instance, if we had a carload of freight originating in St. John, New Brunswick, for St. Catharines or Niagara Falls, of course, we would take it over our line as far as we could, and then hand it over to the Hydro, if it were necessary to take it off our line at all. We would take every foot of haul we could carry on our own line. And the same, if any freight originated on the Toronto-Niagara-St. Catharines, they would carry it as far as they could on their line, and give it to us—or in other words, the way that I understood the agreement as intended or as we discussed it, we did not go into the details such as I am giving now—I must frankly admit that—BUT I UNDERSTOOD IT WOULD BE THE SAME AGREEMENT IN SO FAR AS INTERCHANGING WOULD BE CONCERNED. THAT IT WOULD DO THE SAME AS OTHER RAILWAYS DO. THEY CARRY IT AS FAR AS THEY CAN ON THEIR OWN, AND THEN GIVE IT TO THE RAILWAY THAT MUST TAKE IT OFF.

"Q. THAT WAS YOUR VIEW OF IT? A. THAT WAS MY VIEW OF IT. I CAN ONLY SAY THAT I VIEWED IT IN THAT WAY. WE DID NOT GO INTO THE DETAILS OTHER THAN THAT AS FAR AS MY MEMORY GOES.

"Q. Of course, at that time the Grand Trunk was not considered as a national railway? A. But the Canadian Northern was at Bowmanville just as well as the Canadian National. If it came to Bowmanville, the Toronto-Eastern connected with the Canadian Northern. Therefore, the Canadian Northern would take it, even though we had not got the Grand Trunk.

"Q. So far as the Niagara-St. Catharines is concerned, you did not touch that point with the National Railway then? A. No, we did not touch it. We touched it in this way, that we have a line of steamships running from Port Dalhousie and connecting at Toronto. We would take every way possible to get the freight; that is, after the Toronto-Niagara-St. Catharines had taken it as far as they could."

General Manager W. S. Rodger of the Detroit United Railways is positive that an interchange of traffic with steam lines would greatly develop freight traffic on all interurban divisions if the facilities to handle it are provided, and declares that entrance into Detroit for the interurban lines over their own right-of-way will increase traffic, as his evidence shows:—

PAGE 7557. "Q. If your conditions were such and were so arranged that you could interchange reasonably with steam roads where there were connecting points where traffic would be taken up, would that be an advantage to you, assuming that you had the ability to operate the equipment? A. If we had the facilities it would greatly increase our traffic handling on all divisions, the freight traffic."

"COMMISSIONER BANCROFT. Q. None of your lines have a right-of-way into Detroit, have they, outside of the surface lines? A. No, the right-of-way into the City of Detroit are all controlled by the city lines. Of course, all the interurbans are controlled either by a stock ownership or otherwise by the Detroit United Railway.

"Q. They come in on the streets? A. Yes, all surface.

"Q. Supposing you had the three principal ones coming right into the heart of Detroit on their own right-of-way, what effect would that have? A. A very material effect in increasing the suburban riding and enabling us to get in and out of the city much quicker. There is a howling demand all the time for rapid transit through the city streets to get the people out of the congested area into the suburban districts.

"COMMISSIONER MITCHELL. Q. Your Company also owns the city street railway? A. Yes.

"Q. How many miles in that? A. 306.

"COMMISSIONER MACALLUM. Q. Would it pay to operate the interurban cars on other streets? A. There are hardly any other streets they could be operated over because the streets are poorly constructed, fan-shaped, and it is very unfortunate in its layout for a large city.

"MR. McKAY: Some of our town planners tell us that is where we are unfortunate, that we have not got your fan-shaped diagonal streets? A. No, a high speed line either elevated or subway would be a great boon to the City of Detroit, particularly to the people in enabling them to get out into the suburban districts to live where they could get very much better conditions. Now, all of the interurban lines coming in are up against a 35 to 40 minute ride when they strike the city limits, and that is very discouraging to them.

PAGE 7559. "Q. And if you thought it would pay you better to bring your interurban lines in over a private right-of-way you would do so? A. We are convinced that it would be better for the interurban lines if we had a private right of way.

The Hydro officials collected a great deal of information about freight movements in the territory served by the radials, and had their field survey sheets distributed among a mass of data on radials.

This information was supplemented during the inquiry by freight data supplied by the steam railways, evidence given by motor-truck freight operators, manufacturers in the territory, and many other witnesses. The Arnold engineers went into the whole question in detail also. The information of freight movements on steam railways is useful, but not in such form as to be a basis for judgment of total expectations of freight in this territory. The Toronto-Hamilton and Buffalo Railway Company hauled in 1920, 2,379,242 tons of freight over the Hamilton-Welland division from which it derived a revenue of \$1,610,459.69 on a division of 38 miles, according to Ex. 174, 2,328,505 tons of this was through freight.



Conditions entering into freight revenues are: the class of freight and its particular rate, whether less-than-carload or carload, the length of haul, whether the freight originates at points on the Hydro scheme and is destined to points off the system, or whether it originates at points off the system and is destined for points on the system, or whether the freight originates on the electric railways and goes to points on the railways, and many other things have to be taken into account in comparing steam railway figures of freight traffic. These considerations must be given weight, particularly when an interchange of traffic with the Canadian National Lines is involved.

Under the conditions proposed it is very reasonable to expect that the proposed radials will do a much better freight traffic than the United States interurban railways mentioned in this report. The best of the United States interurban railways are developing the freight traffic, and generally the interurban roads are paralleled by active steam railways and very good highways.

**COSTS OF OPERATION.** The heaviest item by far in cost of operation is conducting transportation, which includes wages and conditions to the employees who operate the cars.

The estimates of the Hydro engineers as given in evidence by Engineers Gaby and Fairlie, are based on wage rates of 50 cents an hour for labourers, and 55 cents an hour for platform time, and eight hours a day platform time.

The Arnold engineers in later estimates based the wage for labourers at 42½ cents and retained the platform time for motormen and conductors at 55 cents. It was explained, that taking 55 cents for all crew hours, would provide a maximum rate of between 55 and 60 cents, as the employees would start at a few cents less than 55. Mr. Arnold claimed that he used as a basis in his estimates wage scales, between those prevailing in the territory and the wages paid on the Detroit United Railways. The wages and conditions are explained in the evidence of engineers Gaby, Fairlie and Arnold.

PAGE 4115-T. U. FAIRLIE.

"MR. HELLMUTH: Q. If labour is more than 50 cents an hour when this railway is built, you have not calculated that much more, whatever that may be; if it is less you have not calculated that much less? A. That is right.

"Q. So that whatever element labour may play in it has been calculated at 50 cents an hour on the Hydro Radials? A. Basic rate, yes.

"COMMISSIONER BANCROFT: Q. That is common labour? A. Yes.

"Q. I suppose for all the other work you use the prevailing rates? A. Yes, in the different municipalities.

"Q. 1920 rates? A. Yes."

PAGE 964—F. A. GABY.

"Q. Assuming the rate of wages they run on now, 55 cents an hour, \$2.20 a day. Can you get men to work for that? A. No, they get another four hours during the day.

"Q. They would get an eight-hour shift? A. They would get eight hours, but they take it in skips.

"Q. That has to be provided in your cost of operating? A. Yes, we have allowed for that, the time taken for the men coming and going. We have figured on a maximum of 60 per cent rush during the period of the two hours in the calculation of our cars. We figured handling those out in certain districts on ten-minute schedules, four or five car trains as the case may be and meshing in the maximum peak on a five-minute schedule.

"MR. ROBERTSON: Q. Have you worked out the time schedule? A. We had to do that to get the number of cars necessary to carry these passengers.

"Q. Would it be convenient to put that in at an early stage? I have been asked by a certain gentleman to see if you had something of that kind? A. We can give a time schedule as to what our operations are.

"Q. Will you put that in? A. Yes.

"Q. On this road particularly? A. Yes."



PAGE 8706—B. J. ARNOLD.

"COMMISSIONER BANCROFT: Q. I would like you to turn to table E. 26 where, under the heading 'Conducting Transportation' is shown 'passenger trainmen' '39,900 motormen hours at 55 cents' and '42,900 conductor hours at 55 cents' and then 'freight and express trainmen; motor express—5,700 crew hours at \$1.65; freight crews—8,450 crew hours at \$2.75.'" Those crew hours mean three to a crew? A. Three men at 55 cents, yes.

"Q. That is in the first case? A. Yes.

"Q. And five to a crew in the second case? A. Yes, I think it divides out that way.

"Q. It means five of a crew? A. Yes, that is what I said a while ago, that on freight cars we put the requisite number of men.

"Q. The next item is 'miscellaneous car service employees and expense', and you have reduced that to car mileage expense? A. Yes.

"Q. I suppose you could tell us the rate that is based on? A. 55 cents an hour.

"Q. Just the same? A. Just a moment. That does not mean that each car is going to carry a certain number of men.

"Q. No, I was wondering what was the basic rate? A. These are car service employees, not motormen and conductors. I do not know that I understand your question?

"Q. What are you going to pay per hour for a miscellaneous car employee? A. I have not that in my mind. I can find that out for you.

"Q. Yes, you can get that afterwards. Then, 'Station Employees; miscellaneous employees, freight handling at Hamilton, Galt, Guelph, 45,000 tons at 35 cents.' Is that for handling per ton or per hour? A. That is handling per ton. I wish I could answer your first question right away, but I can get it for you afterwards.

"Q. Then, 'Station supplies and expenses' and then 'Car house employees and expenses'. That is reduced to car miles? A. Yes.

"Q. I suppose we can get the basic rate for that—how much an hour? A. (No answer)."

PAGE 9377.

"On page 8706 Commissioner Bancroft asked certain questions with reference to wages of station employees and so forth, and I told him, I would get him some information on that.

"The miscellaneous car house employees and expenses are based on a comparison with similar wages paid by other roads. Take the scale paid by the N. S. & T. at the present time, the car house employees would be paid as follows:—

Car cleaners—35 to 45 cents an hour.

Trailer men—42 to 53 cents per hour.

Trailer men helpers—35 to 45 cents per hour.

Pit men—48 to 50 cents per hour.

"THE ACTUAL COSTS ON THE D. U. & R. SYSTEM FOR 1919 AS REPORTED WERE USED AS A BASIS FOR OUR ESTIMATES AND THEY ARE SOMEWHAT HIGHER THAN THESE FIGURES HERE. SO WE FIGURE WE HAVE BEEN FAIR IN OUR ESTIMATES.

"In other words, here is a road operating right in the territory and we have taken a somewhat higher figure.

"COMMISSIONER BANCROFT: Q. Do you say you have taken the D. U. R. figures? A. We used the figures we obtained from the D. U. R. people as a sort of guide in making our figures, and they are somewhat higher than the wages I have just given.

"THE CHAIRMAN: That is the wage scale? A. Yes.

"MR. McKAY: Q. In 1919? A. Yes.

"COMMISSIONER BANCROFT: Q. You have not taken the D. U. R.? A. (No answer.)

Q. You have taken the N. S. & T. and the D. U. R. and have gone in between them? A. I cannot answer offhand but we took the D. U. R. as a guide and in 1919 they were 20 per cent. higher than those paid by the N. S. & T. and we got in between there somewhere.

"In other words, we have attempted not to scale anything down below what might reasonably be expected to happen.

"A large part of this station expense is for material, supplies and so forth, and the balance of it is wages.

"The car couplers and such men as that are estimated to be paid 45 to 50 cents an hour.

"Crossing men, not station expenses necessarily are estimated at about \$900 a year.

"COMMISSIONER BANCROFT also asked at page 8707 for information regarding the wages, and I have some other figures that bear on it.

"The figures are as follows for station agents:

"Toronto and York Radial, from \$70 to \$110 a month.

N. S. & T. \$110 to \$140 per month.

Toronto Suburban \$100 to \$125 per month.

London & Port Stanley \$125 to \$200 a month."

"These are the wages the station agents are now receiving. We have used in our estimates from \$100 to \$200 per month.

"The substation operators on the Toronto & York Radial are getting \$140 a month, and \$150 per month on the N. S. & T. With regard to the Toronto Suburban I have no information.

"COMMISSIONER MACALLUM: Q. How many station agents are there on the London-Port Stanley? A. I do not know. I imagine there must be three day men; I do not know off-hand; they have two large stations, does anyone know?

"MR. McKAY: Port Stanley, St. Thomas and London at least; and Clanford and one other—five? A. We have used for such station men \$100 to \$125 a month.

"COMMISSIONER BANCROFT: Q. Substation men? A. We have taken \$100 to \$125 a month. You are aware that a substation operator has a pretty easy job as a general proposition and consequently men who may be incapacitated for other work can operate a substation and receive that pay for it.

"Clerks, stenographers, cashiers and so forth on the Toronto & York are paid from \$60 to \$110; on the N. S. & T. from \$60 to \$110; on the Toronto Suburban from \$60 to \$100; on the London-Port Stanley from \$65 to \$125, and we have estimated from \$83 to \$125.

"Local station ticket sellers we have put in at \$75 a month.

"For power men, the N. S. & T. pays from \$80 to \$90 a month and we have put them in at \$100 a month.

"I HAVE SIMPLY READ THOSE FIGURES TO YOU TO SHOW WE HAVE NOT TAKEN THE MINIMUM BUT HAVE TAKEN A FAIR AVERAGE AND HAVE BEEN FAIR TO LABOUR."

Both Messrs. Gaby and Arnold claim to have allowed ample money in the estimates to pay wages at prevailing rates in the territory.

I cannot agree with that, and am of the opinion that adjustments will be necessary. These adjustments will not affect the scheme and I am convinced that fair rates of wages and conditions can be given the employees on the radial railways, without interfering with the financial success of the project.

The suggestion to adjust wages brings up a very important matter. In the indenture made between the Hydro Electric Power Commission and the various municipalities, there is a clause which is a grave danger to the employees on the radial railways.

Included here is an extract from the indenture covering the Toronto Eastern Railway.

#### TORONTO EASTERN RAILWAY.

#### EXHIBIT 44.

"This indenture made the \_\_\_\_\_ day of \_\_\_\_\_ in the year of our Lord, one thousand nine hundred and \_\_\_\_\_  
BETWEEN

THE HYDRO ELECTRIC POWER COMMISSION OF ONTARIO (Hereinafter called the "Commission") of the First Part.

and

"The Municipal Corporations of the Township of York, the Township of Scarboro, the Township of Pickering, the Township of Whitby, the Township of East Whitby, the Township of Darlington, the Town of Whitby, the Town of Oshawa, the Town of Bowmanville, and the City of Toronto, (hereinafter called the "Corporations") of the Second Part."

"6. In case the Commission shall at any time or times be prevented from operating the railway or any part thereof by strike, lockout, riot, fire, invasion, explosion, Act of God, or the King's enemies, or any other cause reasonably beyond its control, then the Commission shall not be bound to operate the railway or such part thereof during such time; but the corporations shall not be relieved from any liability or payment under this agreement and as soon as the cause of such interruption is removed the Commission shall, without any delay, continue full operation of the railway, and each of the corporations shall be prompt and diligent in doing everything in its power to remove and overcome any such cause or causes of interruption."

Clause 6 provides, that in the case of a strike or lockout "the Commission shall not be bound to operate the railway", but the corporations or municipalities "shall not be relieved from any liability or payment under this agreement" and the section concludes "each of the corporations shall be prompt and diligent in doing everything in its power to remove and overcome any such cause."

In the case of a dispute over wages and conditions and a deadlock occurred between the Hydro Commission and its employees, the Commission not being bound to operate according to this indenture, the employees immediately come into conflict with the municipalities who are bound to "overcome any such cause or causes of interruption."

It is well known, that the Industrial Disputes Act which provides a means of conciliation and investigation into industrial disputes between employees and employers on public utilities, does not apply where a province is involved, unless by mutual consent of both parties.

There is no provision requiring thirty days' notice on either side of a change of conditions or provisions for conciliation or arbitration, other than what may be made in agreements between various organizations of employees and the Hydro Commission. Disputes occur over making agreements. In my opinion, it is necessary to have legislation passed ensuring the employees on the radial railways the opportunity of conciliation and investigation, in the event of disagreement so that everything may be done to provide uninterrupted service on these public utilities.

As long as Clause 6 stands, as in the agreement, including the words strike and lockout, without protecting legislation for the employees, they are not in a fair position to take care of their own interests.

**CAR MILE COSTS:** Mr. Carroll Bailey in Exhibit 175, being his report, in a table described as "Operating Statistics of Representative Interurban Railways in the United States" gives the average cost per car mile as 41.90 cents. These statistics are to December 31st, 1919, for fourteen railways in operation.

Mr. Arnold in his segregation of operating expenses arrives at 38 cents for the car mile cost for the interurban services in the proposal for Ontario. It is the suburban costs of operation and the greater freight operation that lowers the average car mile costs for the system. It should not be overlooked, that the car mile costs on other electric railways are largely interurban, with entrances into cities over city streets into main terminals and this makes a great difference. It has not been satisfactorily explained by any expert why car mile costs can be comparatively low where wages are at the peak compared with other railways.

One of the clearest explanations of the different conditions that enter into car mile costs was given by Assistant Manager, Wilson of the Toronto and York Radials.

PAGE 11215—CHARLES L. WILSON.

"Q. Suppose that the Metropolitan Division had a right-of-way into the centre of the city, and there was no transfer at that point, where you have to transfer, what effect would that have on your operating cost if you had a rapid transit system, generally speaking? A. I think it would be a very desirable condition for the Metropolitan Railway.

"Q. For instance, in the Hydro estimates it is estimated that the average operating cost per mile is about 28.7. It varies under various conditions, but that is the average, that is in the Arnold estimate. Yours is 44.2. They have taken an average wage of 55 cents an hour. What makes the difference? A. Take the operation on our road on our private right-of-way from Newmarket north, our rate of speed is half again as fast as that on Yonge Street.



"Q. That reduces your operating cost? A. That reduces our operating expenses very materially. Take the question of a combined terminal with rolling stock, car barns, shops, station agents, and all these things that are interchangeable between different roads, the question of handling supplies and stores on a standard road connected and used as a unit will certainly very materially reduce the cost.

"Take our conditions on the Mimico Division. We have a railway four miles from our shop where we have to cart everything back and forth for maintenance and repairs. Our stores are kept at the St. Clair car barn, and that again has to be carted out to those divisions.

"Take the question of supplies and everything of that kind, and the capital expenditure in supplies, and the carrying charges, insurance and building; the Mimico line is 4 feet 10 7-8, the Metropolitan is a standard gauge 4 feet 8½, and the Scarboro gauge is 4 feet 10 7-8. There is the overhead charge for rolling stock and all those things which cannot be interchanged. Take the maintenance of cars. We have to maintain three distinct maintenance gangs at three places day and night, where two gangs would do it instead of six.

"Q. You are acquainted with the various divisions which are before this Commission? A. I have not followed this matter very closely."

PAGE 11217.

"Q. Take for instance, those three roads; supposing they were all the same gauge? A. Yes.

"Q. And they had a right-of-way into the heart of Toronto? A. Yes.

"Q. Would that materially reduce the operating cost? A. Yes.

"Q. Have you no idea how much? A. At one time I did figure out we could save 15 cents or 18 cents per car mile.

"Q. By that process? A. Yes. I figured that somewhere in the neighborhood of 30%, if I remember right; that is some years ago.

"Q. That is, if you have the entrances into the city and your own right of way? A. If we had our own right of way where we could make rapid trips out to the Humber and to the east limit of the City of Toronto, we would have a very material saving.

"MR. MCKAY: Q. You mentioned to one of the Commissioners the matter of scheduled speed. Supposing you could approximately double your scheduled speed of your trips, what effect would that alone have on your operating costs per car mile? A. That would bring it down at least 30%, that one feature.

"Q. If you were able to do that? A. That is the transportation cost.

"Q. Then in the next matter, supposing you did not provide betterments of one kind and another as you have out of operating expenses, and confined the operating expense strictly to what was ordinarily considered direct operating cost, what effect would that have? A. That would show a lower operating rate per mile.

"Q. It would show a lower operating rate per mile? A. Yes.

"Q. Whatever extent you provided for betterments, to that extent your operating costs per mile are increased in the process? A. Yes.

"MR. MCKAY: I think that is all."

On the Chicago-North Shore and Milwaukee Railway the cost of Operation per car mile was 39.45 cents in 1920 and including taxes 41.29 cents and on June 1st, 1920, the wage rate for platform time was set at 82 cents per hour. In 1919 when the wage rate was 67 cents an hour it was 33.12 cents per car mile without taxes and including taxes 35.45 cents.

On the Detroit, Munro, Toledo Line in 1919, Manager Rodger states the car mile cost was 44.40 cents with wages for platform time at 55 to 65 cents per hour and in 1920 with wages set in June of that year at 65 to 75 cents per hour, he gives it as 55.74 cents. The scale on the Detroit United Railways is the same, it is understood, for the street railway system as the interurban railways.

The evidence of C. E. Thompson, assistant to the President of the Chicago and North Shore Railway and Manager W. S. Rodger of the Detroit United Railways, is included to illustrate the different factors which enter into cost of operation and how they vary according to operation. Table 5 is a segregation of costs by services by the Arnold engineers, including car mile costs for all divisions.

PAGE 7811—C. E. THOMPSON.

"The revenue per car mile from passengers was 50.48 cents; freight and express 80.9; miscellaneous revenue 55 cents; total 51.34 cents.

"Q. 51.34 cents per car mile? A. Yes, the operating expenses for Way and Structures; 4.07 cents; Equipment 3.80 cents; Power 6.19 cents; Conducting Transportation 16.65 cents; General and Miscellaneous 7.91 cents; total 39.45 cents. Taxes 1.84 cents per car mile.

"COMMISSIONER MACALLUM: That is, your expenses per car mile are 39.45 cents? A. Without taxes, and with taxes 41.29 cents."

PAGE 7812.

"The operating expenses for 1919 were: Way and Structures 4.83 cents; Equipment 3.76 cents; Power 5.01 cents; Transportation 13.19 cents; Traffic 0.80 cents; General Miscellaneous 5.98 cents; Total 33.12 cents, excluding taxes. The taxes are 2.33 cents, making a total of 35.45 cents.

"Q. That is, the operating expenses per car mile were 33.12 cents without taxes and 35.45 cents including taxes in 1919? A. Yes.

"Q. What were the causes of the increase, can you say? Can you give any reason for that increase in costs per car mile in 1920 over 1919? A. The increased cost per car mile was due to increase in the wage scale, to the increase mileage operated on the terminal and to a slight extent due to increase in cost of materials.

"Q. Was there any increase in power cost between 1919 and 1920 or did the power increase you spoke of take place; when did that take place? A. There was a considerable increase in the power cost of a little over 20%.

"Q. When did that take place? A. It was affected by the increase in the price of coal and the increase in the labour costs of the power companies.

"Q. When was that order made about which you told the Commission in regard to power? A. The order of the Commission was effective in September, 1918, in Wisconsin, and in August of 1920 in Illinois. The effect of the Wisconsin order was not nearly so pronounced until 1920, until we got into the peak of the labour cost and the very high coal cost.

"Q. That is the time you felt it most? A. Yes.

"Q. Speaking of your cost of power, have you worked out what it is on the basis of consumption? A. I can tell you the consumption per car mile. The average for 1920 was 4.46 kilowatt hours per car mile.

"Q. So that the cost of power per car mile will enable one to get at the cost if they desired to do so? A. Yes.

"Q. Can you tell us what reductions would be made in the cost per car mile if a return was made to the former basis of operating wages and to the former cost of power? A. I worked it out in this way; since June 1, 1920, our wage scale has been on the basis of 82 cents an hour for trainmen. Of course, on a road of our character the scale paid trainmen is reflected through all other classes of labour.

"Prior to that time for a few months our scale was on the basis of 67 cents; in other words, we had a flat increase of 15 cents per hour or about 23%, which was reflected in all classes of labour.

"I just missed that last statement? A. I said that effective June 1st last year our wages of trainmen were increased to the basis of 82 cents per hour from 67 cents per hour, an increase of 15 cents an hour or 23% or 24%, which increase was reflected through all other classes of labour on our line.

"Q. That is to say, all other classes of labour received approximately the same percentage of increase? A. Yes."

DETROIT MUNROE AND TOLEDO LINE

PAGE 7479—W. S. RODGER. "Q. You have not got before you the relative figures of passenger and freight car mileage the operating ratio in 1919? A. 54.19.

"Q. Could you tell me any of the matters which made a difference in expense of operation in 1920 as against 1919?

"A. Higher wages paid to the men and a decreased traffic due to the industrial depression.

"Q. What were your rates of wages commencing 1919 and without going through all the detail I suppose we may fairly take the wages paid to train crews as fairly illustrative, what were they in 1919? A. I believe the average in 1919 was 55 to 65 cents per hour for the trainmen and it was raised in June 1920 to 65 to 75 cents per hour. At the time that the trainmen received their increase, wages and salaries generally over the system were increased to the extent of about 20%.

"MR. HELLMUTH: Say in June, 1920? A. Yes, sir.

"MR. MCKAY: The figures we have been giving to the Commission are for the calendar year 1919 and 1920, they are not June to June figures? A. Yes, sir, except that the increase to the high rate of 75 cents did not take effect until June.

"THE CHAIRMAN: That would only apply to part of a year? A. Yes, sir.

"MR. MCKAY: Half the year 1920 increased wages were in force? A. Yes."

PAGE 7478

"Q. What were the operating expenses during the year 1920 first, and then 1919? A. That total operating expenses per car mile on the D. M. & T. for 1920 were 55.74 cents per mile.

"Q. That is both passenger and freight? A. Yes.

"Q. Just for the purpose of getting at a basis, can you tell me the total operating expenses in money?

"A. Total operating expenses 1920, \$1,012,942.06.

"COMMISSIONER MITCHELL: Is that on the one line on the Detroit, Munro and Toledo? A. Yes.

"MR. MCKAY: And that yielded an operating expense per car mile of —? A. 55.74 per car mile.

"Q. We have already the total revenues both of passenger and of freight, and we can get the operating ratio by that—Have you available before you the operating ratio for that year?

"A. Yes, sir.

"Q. What was that? A. 65.18 in 1920.

"Q. Could you give me the similar figures for 1919 what were the total earnings in that year?

"MR. HELLMUTH: Would you take the same order? He gave the operating expenses per car mile first.

"MR. MCKAY: Yes, operating expenses per car mile?

"A. 44.40.

"Q. Now the total operating expenses in that year?

"A. \$796,977.92.

"Q. You have not got before you the relative figures of passenger and freight car mileage—the operating ratio in 1919? A. 54.19."



B. J. ARNOLD

EXHIBIT 208

TABLE V.

## "HYDRO-ELECTRIC RAILWAYS".

## SEGREGATION OF OPERATING EXPENSES BY CLASSES OF SERVICE—1925.

<i>Toronto-St. Catharines Division:</i>				
Operating Expenses.....	\$ 690,800	\$ 224,200	\$ 565,000	\$ 1,480,000
Car Miles.....	2,180,000	1,066,000	3,085,000	6,331,000
Expenses per car mi.....	31.6c	21.0c	18.3c	23.4c
Revenue per car mi.....	64.3c	31.7c	35.4c	45.4c
Operating Ratio.....	49%	66%	52%	52%
<i>Toronto-Eastern Division:</i>				
Operating Expenses.....	\$ 201,100	\$ 388,600	\$ 107,300	\$ 697,000
Car Miles.....	632,000	2,092,000	378,000	3,102,000
Expenses per car mile.....	31.8c	18.6c	28.4c	22.5c
Revenue per car mile.....	70.9c	31.2cD	49.0c	42.2c
Operating Ratio.....	45%	60%	58%	53%
<i>Toronto Suburban Division:</i>				
Operating Expenses.....	\$ 240,600	\$ 357,900	\$ 55,500	\$ 654,000
Car Miles.....	620,000	1,287,000	240,000	2,147,000
Expenses per car mile.....	38.8c	27.8c	23.1c	30.4c
Revenue per car mile.....	46.6c	32.7c	52.5c	39.7c
Operating Ratio.....	83%	85%	44%	77%
<i>Hamilton-Elmira Divisions:</i>				
Operating Expenses.....	\$ 377,500	\$ 87,600	\$ 234,900	\$ 700,000
Car Miles.....	784,000	430,000	682,000	1,896,000
Expenses per car mile.....	48.2c	20.4c	34.5c	36.9c
Revenue per car mile.....	75.3c	24.7c	51.2c	56.2c
Operating Ratio.....	64%	82%	67%	66%
<i>N. S. &amp; T. Divisions:</i>				
Operating Expenses.....	\$ 498,400	\$ 219,600	\$ 301,000	\$ 1,019,000
Car Miles.....	1,055,000	630,000	743,000	2,428,000
Expenses per car mile.....	47.2c	34.9c	40.5c	41.9c
Revenue per car mile.....	58.8c	37.3c	68.0c	58.3c
Operating Ratio.....	80%	94%	60%	72%
<i>All Divisions:</i>				
Operating Expenses.....	\$2,008,400	\$1,277,900	\$1,263,700	\$ 4,555,000
Car Miles.....	5,271,000	5,505,000	5,128,000	15,904,000
Expenses per car mile.....	38.0c	23.2c	24.7c	28.7c
Revenue per car mile.....	63.7c	31.9c	44.0c	47.2c
Operating Ratio.....	60%	73%	56%	61%

Note: For details by major accounts see Table Page A-8"

This table is taken from Arnold's Exhibit 208 and includes subway Terminal in Toronto.

The car mile costs in the Hydro Estimates as compared with other railways have to be considered from the standpoint that it is intended to do a regular freight business, both carload and less than carload on electric railways, with entrances into main terminals, and other advantages enumerated which lower the average car mile costs. It is questionable whether any electric road has the advantages as contained in the proposal.

**BASIS OF ESTIMATES.** In the Hydro estimates, six per cent. is estimated as interest charge on capital investment, except in the case of the purchase of the Niagara Central Lines, which includes the assumption of 5 per cent. bonds amounting to \$1,098,000, due 1929, and 50 year 4½ per cent. bonds amounting to \$2,446,374.90; and in the case of the Toronto Suburban the assumption of bonds at 4½ per cent. due 1961 amounting to \$2,628,000.

A sinking fund is started ten years after commencement of operation of one per cent. each year, except in the case of the Toronto Suburban when the sinking fund commences in 1930, and for the Niagara Central Lines the sinking fund commences in 1931.

In the Arnold estimates the sinking fund of one per cent. commences on all divisions in 1935.

Depreciations and maintenance are provided for, and taxes at various rates.

The passenger rates are generally standard, 2.875 per mile; interurban average 2¼ to 2½c. per mile, and suburban averages 1½ cents per mile.

Freight rates are based on those in effect May 30th, 1920, although the rates have been increased by 40 per cent. in August, 1920.

Power rates are included for each point on the various divisions.

GENERAL EVIDENCE. A mass of evidence and many reports have been submitted to your Commissioners. The evidence consists of twenty-seven volumes and 13,376 pages. Your Commissioners heard evidence during 112 days. They visited many of the interurban railways in operation in the United States and mentioned in the evidence, toured the territory involved in the Radial Scheme proposed by the Hydro Commission and examined the plans during the inspection of the locations.

I have endeavoured in this report to deal strictly with the broad question asked by the Government as to whether the Province of Ontario should endorse the principle of publicly owned and operated radial railways, and if so, how to proceed.

The Hydro engineers and Arnold engineers made the most thorough study of the scheme from every angle compared with any other experts. The great amount of information given by these engineers reflects a tremendous amount of work. Your Commissioners insistence for details and summaries of various features helped to make the work heavy. The Hydro engineers are engaged in the construction and operation of public utilities owned by the people. Their sole interest in the matter is the benefit of the municipalities for which they are trustees, and the welfare of the province.

Two witnesses who gave much evidence, severe in criticism of the estimates and the scheme were Mr. W. F. Tye and Dr. L. A. Herdt. These two engineers joined in a "Report on the proposed Hydro-Electric Radial Railway from Port Credit to St. Catharines, Ontario" in 1917. Their conclusion then was "Your Board has reached the unanimous conclusion that it is not in the best interest of Hamilton to enter the proposed agreement." This was a recommendation to a citizens' committee of Hamilton regarding the proposal of the Hydro Commission to build the Port Credit to St. Catharines line. At a more recent date the citizens of Hamilton voted in favour of joining in the radial project.

Mr. R. F. Rifenberick, Consulting Engineer, of Detroit, applied the accounting system of the Interstate Commerce Commission of the United States for electric railways to the Hydro proposal. It is not in my opinion a reasonable test to apply to a new railway. It is doubtful whether any steam railway or electric railway in Canada or the United States would survive the test as it was applied in this case.

Mr. R. I. Todd of Indianapolis gave evidence of a gloomy nature about the finances of interurban roads around Indianapolis, yet in a speech delivered before the Central Electric Railway Association held at Toledo, February 24th, 1921, several months before he gave evidence, he said:

"If our electric railways have thus shown such staying powers in the midst of what seemed insurmountable obstacles, is it not positive proof that with adequate fares and just regulation they will be able to render such service in the carrying of passengers and freight as will contribute perhaps more than any other one factor to the great upbuilding of our American cities and towns and play a most important part during the present and coming period of reconstruction?"

"This fact is recognized by some of the greatest financiers of the country, who have freely expressed the opinion that with proper rates of fare, electric railway securities will be among the most stable and solid investments anywhere to be found and compare favourably with municipal bonds and other first class securities. If this is true, as it undoubtedly it, a great civic and moral responsibility rests upon rate-making bodies everywhere to see that such fares are allowed in the interest and welfare of the great body of the public and the growth and upbuilding of the cities and towns."

General Manager Rodger, of the Detroit United Railways, states that 8 per cent. was paid in 1920 on \$15,000,000 of common stock. The Detroit United Railways includes many interurban railways. His evidence on this point is:

PAGE 7609.

"COMMISSIONER BANCROFT: Q. Do you know what your total payroll was in the year 1920?  
A. No, sir; I have not figured it.

"Q. You paid 8% did you not, on \$15,000,000?

"A. Yes.

"Q. \$1,200,000? A. Yes.

"Q. That is on the Common Stock? A. Yes.

"Q. And you paid all your interest charges, your interest on your bonds? A. Yes.

"Q. You were speaking about a reduction in the cost of operation? A. Yes."

The difficulty of accurately representing the interurban earnings of the United States railways is illustrated by Mr. Carroll Bailey in his evidence, and it emphasizes the difficulties of accurate comparisons.

PAGE 6148.

"Q. In speaking of table one and of taking the whole mileage. I want to just clear up this; is it your understanding that the whole earnings over that mileage—that is, the total receipts of the road over the complete mileage—are included in table one?

"A. That is my understanding, sir.

"Q. And the only adjustment to be made is in the matter of operating cost where certain rentals might have to be regarded for the purposes of comparison?

"A. Yes, sir, if they are receipts on a track that is rented, they appear in the gross; if they are rentals to be paid for the use of the track, they appear in the operating.

"COMMISSIONER BANCROFT. Q. Is it your understanding that the earnings of an interurban road from the centre of Toledo to the centre of Cleveland are included in table one?

"A. Yes, sir, that is my understanding.

"MR. ROBERTSON: Q. So that for the purpose of getting earnings per track mile of route, the total is quite right?

"A. That is the reason we took the total mileage included."

PAGE 6150.

"COMMISSIONER BANCROFT: Q. Would you mind letting me return to that for a moment. I want to clear this up in my own mind. Here is the record, page 2724. Mr. Hellmuth is speaking,

"When we are dealing with the earnings of the Lake Shore as a distinct corporate entity everything will be omitted that is earned beyond Toledo?

"A. Yes.

"Q. And may I say in the same way everything will be put out that runs from Sandusky direct to Freemont on that line?

"A. Yes; except you will find in our report a complete detail of the Sandusky, Freemont and Southern Railway just the same.

"Q. But it is not part of the Lake Shore?

"A. No sir, neither earnings nor expense nor anything of that kind is included."

"Then I asked a question.

"How about the earnings in the city of Cleveland?

"A. They are not included.

"Q. Then your gross revenues are from the outside of the city of Cleveland—and when you get to Sandusky and then from Sandusky to Freemont is taken out?

"A. Taken out.

"Q. And then you go to the outside of Toledo; that represents the gross earnings? A. Yes."

"That is the evidence of Mr. W. F. Coen.

"Q. That is from the outside of Toledo to the outside of Cleveland.

"A. His testimony sounds conclusive as far as his roads are concerned. I do not think that is the usual practice in setting up the financial statements.

PAGE 6151. "Q. If that was so it would change your figures, wouldn't it?

"A. As far as those roads are concerned.

"COMMISSIONER MITCHELL. Q. I think that applies particularly to Cleveland because they, when they get to the boundary of the city, hand their car to the city line and the city line takes the receipts of passengers?

"A. Change motormen and conductors. If they did that, then it would work out in that way.

"Q. It is wholly a city line.

"MR. ROBERTSON: Q. And they pay another fare there?



"COMMISSIONER BANCROFT: I am not concerned about the operation; I am concerned about where the earnings inside the city go.

"WITNESS: If that is true in regard to the Cleveland line, as conclusively it seems to be, the mileage should omit the Cleveland mileage."

## RECOMMENDATION 2.

THAT THE GOVERNMENT INSTRUCT THE HYDRO-ELECTRIC POWER COMMISSION TO PROCEED AT ONCE WITH NEGOTIATIONS TO COMPLETE CONTRACTS OR AGREEMENTS FOR THE FOLLOWING: THE PURCHASE OF CERTAIN ELECTRIC RAILWAYS NOW OWNED BY THE FEDERAL GOVERNMENT AND THE TRAFFIC ARRANGEMENTS WHICH MAY ENTER INTO THE AGREEMENTS; THE PURCHASE OF A SECTION OF THE GRAND TRUNK STEAM RAILWAY OWNED BY THE FEDERAL GOVERNMENT; TO ACQUIRE RUNNING RIGHTS OVER CERTAIN SECTIONS OF THE GRAND TRUNK RAILWAY; ENTRANCE INTO AND THROUGH HAMILTON ON THE RIGHT-OF-WAY OF THE GRAND TRUNK RAILWAY AND OTHER ARRANGEMENTS AND AGREEMENTS WHICH I PROPOSE TO OUTLINE IN THIS REPORT.

According to the evidence there are a number of contracts, agreements, or arrangements to be made between the Hydro Electric Power Commission and other parties to complete the scheme as proposed. Among these agreements is the purchase of the three railway divisions from the Federal Government or the Canadian National Railways and the obtaining of trackage rights through Hamilton on the right-of-way of the Grand Trunk Railway. These agreements, etc., are summed up as follows from the evidence:

## CONTRACT, AGREEMENT, OR ARRANGEMENT:

- (1) To acquire the Toronto Eastern Railway from the Canadian National Railways.
- (2) To take passengers from the Bay Street Terminal at Toronto uptown. This means making an arrangement with the Transportation Commission of the City of Toronto for the operation of a street car line to meet the passengers at the Bay Street Terminal or the building of a loop to bring passengers uptown, or some other arrangement to take the passengers from the Bay Street Terminal uptown.
- (3) To acquire the Oakville to Hamilton Radial Railway line, now owned by the Dominion Power and Transmission Company.
- (4) To secure trackage rights through Hamilton from the Grand Trunk Railway.
- (5) To acquire the Niagara-St. Catharines and Toronto Railway, sometimes referred to as the Niagara Central Lines from the Canadian National Railways.
- (6) To acquire the Galt and Elmira Branch of the Grand Trunk Railway from the Canadian National Railways.
- (7) To acquire trackage rights from Guelph to Galt on the Grand Trunk Railway.
- (8) To acquire the Toronto Suburban Railway from the Canadian National Railways.
- (9) To acquire the right-of-way of the Old Belt Line from Lambton to the Lake Shore Road, over which right-of-way it is proposed to connect the Toronto Suburban Railway with the Toronto-St. Catharines Division between Sunnyside and the Humber River.
- (10) To acquire operating rights over the Oshawa Electric Railway from the Canadian National Railways.
- (11) To arrange for a connection at the Frontier.

Mr. Gutelius states regarding these agreements, etc.

"110. It is practically impossible at the present time TO ADVISE WHETHER THE RADIAL SCHEME AS PRESENTED WILL BE SELF-SUPPORTING FOR THE REASON THAT THE BASIC CONTRACTS HAVE NOT YET BEEN COMPLETED AND UNTIL THE TERMS OF THESE CONTRACTS ARE KNOWN IT WOULD BE IMPOSSIBLE TO REACH A DEFINITE CONCLUSION. The contracts and agreements referred to are as follows:

"Contract to acquire the Toronto and Eastern from the Canadian National Railway.

"Contract to acquire the Toronto Suburban from the Canadian National Railway.

"Contract to acquire the Toronto-St. Catharines from the Canadian National Railway.

"Contract to acquire the Galt and Elmira from the Grand Trunk.

"Contract to secure trackage rights through Hamilton from the Grand Trunk.

"Contract for trackage rights, Guelph to Galt on the Grand Trunk.

"Contract to acquire the line from Oakville to Hamilton.

"Contract to acquire the line from Hamilton to Beamsville.

"Contract to acquire the York Radial, Toronto to Port Credit.

"Contract with the Toronto Terminal Company for joint terminal facilities in the City of Toronto.

"111. The terms of any and all the above contracts might be so onerous as to defeat the ambition of the promoters."

Mr. Gutelius, in enumerating the contracts in this document refers to a contract to acquire the line from Hamilton to Beamsville, which has not been proposed by the Hydro Engineers; and a contract to acquire the York Radial—Toronto to Port Credit line—which is not included in the scheme but is to be acquired in the "clean-up" now under consideration; and refers to a contract with the Toronto Terminal Company for joint terminal facilities in the City of Toronto which is not included in the proposal, but has been mentioned during the investigation. As the estimates of the Hydro Engineers and the Arnold Engineers have been based on the assumption that many of the arrangements summarized in this report can be made, or alternate plans carried out, it is very important that negotiations be proceeded with immediately to complete the scheme.

With regard to entrance into Hamilton and through Hamilton over the Grand Trunk Railway right-of-way, the evidence given by Chief Engineer Gaby, and a letter, Exhibit 237, from President Howard G. Kelly of the Grand Trunk Railway System on the same subject, included in this report, illustrates the necessity for proceeding with negotiations to complete all the arrangements involved in the scheme.

PAGE 208-9. F. A. GABY.

"Q. So that through Hamilton you are not buying any right-of-way? A. Not for the purpose of this estimate.

"Q. That is, you are arranging or proposing to arrange with the Grand Trunk? A. Yes.

"Q. Have those arrangements been made? A. The final arrangement has not been made; the matter has been taken up with the President of the Company and discussed and details gone into with the Engineers and operating man.

"Q. How far does that take you through Hamilton? A. To the east of Hamilton in the neighbourhood of—to the west or north of Red Hill."

PAGE 303-4.

"Q. Then at what time did this change occur? Could you state the year or month or about the month? A. It has been more or less a gradual thing right from the time the by-laws were submitted because at that time representatives of the municipalities objected very strenuously to having further entrances into Hamilton; they wanted to combine all the entrances as a matter of fact on the present Grand Trunk location, and during the by-law this matter was actively discussed not only by the Railway Committee and Council, but by the people and by the Commission, and in placing the matter before the people we discussed the situation and promised our best efforts and endeavour to have the location changed from the Canadian National Railway, if possible, and combine it with that of the Grand Trunk Railway. I could not name any specific date because it has been a more or less continuous process; the matter has been taken up with the President of the Grand Trunk, and more especially since the taking over by the Government of the Grand Trunk.

"Q. Wasn't it stated publicly that the Hydro Electric Commission itself preferred the route over the Grand Trunk tracks or as close as possible to them if they could get permission from the Grand Trunk? A. That is right.

"Q. You didn't get permission from the Grand Trunk? A. WE HAVE NEVER GOT PERMISSION, BUT WE HAVE. SINCE THE CONTEMPLATED TAKING OVER BY THE DOMINION GOVERNMENT. HAD VERY ACTIVE CO-OPERATION BETWEEN THE ENGINEERING DEPARTMENT AND OPERATING DEPARTMENT.

"Q. The route which you suggested to us was really made possible when the Dominion Government took over the Grand Trunk? A. Yes.

"Q. That is why you changed it? A. That is why we changed it, and of course in compliance with the request and desire of the municipalities."

PAGE 32L.

"Q. It is not agreed upon, in plain English? It is not agreed upon at all? A. We have had negotiations with the Engineers and they are satisfied as to the feasibility of the route and it is simply a matter of completion.

"Q. Have you had any communication with the Minister in regard to it? A. No.

"Q. Or from the General Manager of the road?

"A. We have had communications from the Minister with regard to it.

"Q. Have you had anything from the General Manager of the road?

"A. The matter has been discussed with the Commission and the General Manager of the road.

"Q. Isn't it the fact that his attitude certainly cannot be described as favourable?

"A. Any information I have gained he is very favourable towards it.

"BY THE CHAIRMAN: Q. Who is that?

"A. Mr. Kelly, the President of the Grand Trunk Railway."

#### EXHIBIT 237. "GRAND TRUNK RAILWAY SYSTEM.

"Howard G. Kelly,

President.

At New York, Montreal, Que.

Nov. 3rd, 1920.

"I. F. Hellmuth, Esq., K. C.,

Counsel, Radial Railway Commission,

C-O Messrs. Hellmuth, Cattanaach & Meredith,

C. P. R. Building,

Toronto, Ont.

"Dear Sir:

Replying to your letter of the 29th ultimo; I beg to say that I have had no negotiations with representatives of the Hydro Electric Railway Commission looking to the use of the right-of-way of the Grand Trunk Railway through Hamilton for the purposes of an electric radial railway. Some months ago I had a conversation with Sir Adam Beck upon the subject, but the discussion was in the most general terms, and I did not consider it in the light of a negotiation. Any examination of plans which may have been made by engineers of the Grand Trunk Railway would have been merely in the nature of information, and so far, no plans or reports have been submitted to me.

Yours faithfully,

(Sgd.) Howard G. Kelley,

President."

RECOMMENDATION 3. UPON THE COMPLETION OF SUCH AGREEMENTS OR CONTRACTS, OR THE CHOICE OF ALTERNATE PLANS WHERE A SATISFACTORY AGREEMENT OR CONTRACT IS NOT ARRIVED AT, THE HYDRO-ELECTRIC POWER COMMISSION SHALL AT ONCE PLACE BEFORE THE GOVERNMENT THE RESULT AS COMPLETED, SHOWING CLEARLY WHERE THEIR EXPECTATIONS WERE REALIZED AND WHERE ALTERNATE PLANS HAD TO BE CHOSEN.

When the agreements or arrangements are completed or alternate plans chosen, the Hydro Electric Power Commission will be able to present to the Government a final total amount for the cost of construction. Declining prices of materials, will further reduce the capital cost and the total should be less than the later Arnold estimate of \$40,753,000 for 1925, but not including a subway terminal in Toronto. The Hydro engineers will take advantage of such suggestions made by the Arnold engineers which improve the scheme, and the result of their studies. With all the arrangements completed and every care taken in the final details of construction, the scheme as proposed by the Hydro Engineers and the Arnold Engineers, without the Toronto subway terminal will be on a safe foundation.



RECOMMENDATION 4. FOLLOWING THE ACTION INDICATED ABOVE, THE GOVERNMENT SHALL REQUEST THE HYDRO-ELECTRIC POWER COMMISSION TO RECOMMEND TO THE GOVERNMENT, THE MOST ADVANTAGEOUS AND ECONOMIC TIME TO COMMENCE CONSTRUCTION OF RADIAL RAILWAYS AND ON WHICH DIVISION OR DIVISIONS CONSTRUCTION SHOULD BEGNN FIRST. THE AMOUNT OF MONEY ALREADY EXPENDED ON THE TORONTO AND ST. CATHARINES DIVISION WITH THE DESIRE OF THE MUNICIPALITIES SO CLEARLY EXPRESSED. WOULD SUGGEST THAT THIS DIVISION OUGHT TO BE COMMENCED FIRST AND HURRIED TO COMPLETION, SO THAT THE REVENUES MAY BE EARNED AS SPEEDILY AS POSSIBLE. THIS DIVISION IS ADMITTEDLY THE BEST AND MOST FAVOURABLE IN THE WHOLE PROJECT.

It is clear from the evidence, that the Hydro Electric Power Commission had no intention of proceeding with any substantial amount of construction during the high cost period of 1920. In Exhibit 54. being a letter from Sir Adam Beck, dated June 11, 1920. to Honourable E. C. Drury, Prime Minister of Ontario, extracts from which appear in the Government statement of July 6th, 1920, Sir Adam states:—

"The contemplated work for the year 1921 provided conditions remain as at present. will require an expenditure of approximately \$2,500,000.

"It is the intention of the Commission to proceed with the work of constructing electric railways ONLY TO SUCH EXTENT AND AS RAPIDLY AS CONDITIONS AS TO REVENUE AND THE COST OF MATERIALS AND LABOUR WILL WARRANT."

Chief Engineer Gaby during his examination, page 933 of the record, gave evidence as follows:

"Q. Have you taken anything of that kind into consideration as likely to affect your service? A. Yes, estimates have been prepared on a basis of a certain rate and a certain cost as of today.

"Q. And yet you do not propose to build any road when costs are as of today? A. No."

Bion J. Arnold, in his report, Exhibit 206, and on "Report Page 29." states, "As the policy of the Hydro Electric Commission is understood it had no intention of proceeding with any large construction programme at the high level of prices existing in the early part of 1920. It was proposed to take only such steps of the general programme as the occasion might demand leaving the general construction to be carried out when THE PRICE LEVEL HAD FALLEN TO SUCH A POINT AS WOULD WARRANT SUCH ACTION."

During the evidence attempts were made to get from experts a date at which construction should be commenced. The answers were mostly indefinite. The Hydro Electric Power Commission should be requested by the Government to recommend proceeding with construction when price levels have reached a stage to warrant it.

There has been expended to February 15, 1921, according to Exhibit 158, which is a certified statement from Treasurer J. U. Gilmour of the Hydro Electric Power Commission, \$1,183,437.83 on the Toronto-Port Credit-St. Catharines Division. This is for right-of-way, construction material, surveys and investigations. The total amount expended according to this exhibit up to February 15, 1921, on electric railway construction connected with the divisions in this proposal, is \$1,310,548.64.

Your Commissioners requested Honourable Mr. Raney to provide them with information regarding the investment in radial railways by the province and other information, which was supplied through the Attorney General in a statement by Mr. G. T. Clarkson, which is included in this report.

Mr. Clarkson shows the sums invested by the Hydro Electric Commission of Ontario in Hydro Radial Railways and these totalled amount to \$3,453,103.76. This is to October 31, 1920.

The situation at present is that up to October 31, 1920, the investment of the Hydro Electric Power Commission in electric railways totalled \$3,453,103 76, and in addition to this, bonds to the amount of \$10,160,363 for the Port Credit to St. Catharines Line "stood on October 31, 1920, guaranteed by the Province but unsigned by the Secretary of the Commission and unsealed by the Commission—and October 31, 1920, they were in the possession of the Commission.

"Since October 31, 1920, and on or about the 28th December, 1920, a further loan of \$400,000 was obtained by the Commission from the Bank of Montreal, on the security of \$1,200,000 of bonds mentioned which thereafter stood pledged for a total amount of \$500,000."

It is also understood that, during the investigation, the Government decided to guarantee the bonds for the purchase by the Hydro Electric Power Commission of the three divisions of the Toronto and York Radials, the Sunnyside to Port Credit Division, the Metropolitan (North Toronto to Lake Simcoe) and the Scarboro Division.

Construction on the Toronto-St. Catharines Division from Toronto to Niagara Falls should be commenced as early as possible. A great sum of money has already been expended on this line.

With the acquisition of the Niagara Central Lines, which are in operation and their connection with the Toronto-St. Catharines Division; the acquisition of the Toronto Suburban, in operation at present, and its connection with the Toronto-St. Catharines Line between the Humber River and Sunnyside, both freight and passenger revenues will be increased greatly on the Toronto-St. Catharines Division. The early construction of this line with two divisions connected, will put three divisions in operation, and should do a great deal to convince the opponents of the project of the great benefits derived from radial railways.

Much evidence has been given about the separation of the Toronto-Port Credit section from the Toronto-London Line and its inclusion in the Toronto to St. Catharines Line. Mr. Clarkson's statement makes clear the expenditures on radials for each division and the method by which the Toronto-Port Credit section is included in the Toronto-St. Catharines Line. I am including his review of the situation on Hydro Radial Railways up to October 31, 1920. Mr. Clarkson's statement is followed by the statement of Treasurer Gilmour of the Hydro Electric Power Commission, Exhibit 156, showing the expenditures on radial railways to February 15, 1921.

"*Re Hydro Radial Railways.* In reply to your enquiry as to the amounts invested by the Hydro Electric Commission of Ontario in Hydro Radial Railways and the proportion thereof which have either been advanced in money or guaranteed by the Province, I would state to October 31st, 1920, to the end of the last fiscal year of the Commission the following amounts stood capitalized upon the books of the Commission in respect of the investment in Hydro Radial Railways.

"(1) In the Sandwich, Windsor and Amherstburg Railway .....	\$2,255,500 95
"(2) In the Port Credit to St. Catharines Radial Railway .....	413,620 85
"(3) In the Toronto to Port Credit Railway .....	683,286 74
"(4) In the Toronto and Eastern Railway .....	143,946 40
"(5) In the St. Catharines & Niagara Falls Railway .....	25,984 29
"(6) In the Hamilton, Galt, Elmira & Guelph Railway .....	36,482 06
"(7) In the Hamilton, Brantford, Woodstock and London Railway ....	17,674 34

"While in addition the Commission had also expended in respect of valuation:—

"(8) Niagara, and St. Catharines and Toronto Railway .....	1 005 27
"(9) Toronto and Suburban Railway .....	5.604 86

"Dealing with them in order:—

"*Re Sandwich, Windsor & Amherstburg Railway.* The investment of the Commission in the above undertaking amounted on October 31st, 1920, to \$2,255,500.96, of which \$2,039,000 was represented by forty year 4½% bonds of the Commission to April 1, 1920, guaranteed by the Province of Ontario, while the balance was made up of advances to the extent of \$216,500.96 made by the Commission to the undertaking. Of these advances, \$200,000 were borrowed by the Commission from the Bank of Montreal against the security of \$61,000 forty



year 4½% bonds of the Commission guaranteed by the Province and due on April 1, 1960, and \$190,000 of bonds of the City of Windsor given in purchase of electrical works owned by the Railway Company and sold to the City by the Commission after the date of purchase.

"From the above it will be seen that the total of the bonds outstanding and guaranteed by the Province is \$2,100,000—\$2,039,000 of which represented the purchase price of the undertaking and \$61,000 held and later pledged for purposes of rehabilitation.

"As against the guarantee of the Province given in respect of \$2,100,000 of bonds above mentioned, eight municipalities have lodged their debentures with the Commission to the amount of \$2,100,000 as security for payment of any operating deficits on the capital cost of the undertaking. No cash advances have been made by the Province to the undertaking.

"Since October 31st, 1920, the Commission on behalf of the undertaking has made application to the Government of the Province for the guarantee of upwards of \$900,000 more of bonds for purposes of rehabilitation, extension and acquisition of equipment.

"*Re Port Credit to St. Catharines Railway.* The total amount invested by the Commission in the Port Credit to St. Catharines Railway to October 31st, 1920, was \$413,620.85, of which \$406,509.66 was expended in the fiscal year ending October 31st, 1920. In respect of this Radial Railway, the Province of Ontario has guaranteed bonds of the Commission under the Hydro Radial Railways Act to the amount of \$11,360,363, of which said bonds \$1,200,000 stood deposited on October 31st, 1920, with the Bank of Montreal as security for the payment of advances then outstanding of \$100,000. The remainder of the bonds \$10,160,363 stood on October 31st, 1920, guaranteed by the Province but unsigned by the Secretary of the Commission and unsealed by the Commission—on October 31st, 1920, they were in the possession of the Commission.

"Since October 31st, 1920, and on or about the 28th of December, 1920, a further loan of \$400,000 was obtained by the Commission from the Bank of Montreal on the security of \$1,200,000 of bonds mentioned which thereafter stood pledged for a total amount of \$500,000.

"With the investment of the Commission in the undertaking amounting to \$413,620.85 on October 31st, 1920, and \$100,000 only obtained at that time by borrowing (against \$1,200,000 of bonds mentioned) the remaining \$313,620.85 was expended out of moneys belonging to the power undertaking. The use of power funds for such purposes being unauthorized, the further loan of \$400,000 was obtained on December 28, 1920, to refund the same.

"At the present time the obligation of the Province in respect of Toronto, St. Catharines Railway consist of the guarantee on its part of \$11,360,363 of Hydro Radial bonds, of which \$10,160,363 are held by the Commission not fully executed and the remaining \$1,200,000 are pledged to the Bank of Montreal for advances of \$500,000. No cash advances have been made by the Province for the purposes of the Railway."

"*Re Toronto to Port Credit Radial Railway.* To October 31st, 1920, the expenditures of the Commission in connection with the Toronto to Port Credit Radial Railway amounted to \$683,286.74, which expenditures were made upon the authority of a letter of Sir William Hearst, late Premier of the Province of Ontario, that if the Commission would obtain resolutions by the municipalities interested requesting the Government to introduce and pass all amendments to existing legislation that might be necessary to validate the building of an electric railway between Toronto and Port Credit, as part of the proposed Toronto to St. Catharines Hydro Electric Railway, so as to make the same legal, valid and binding upon the municipalities, that the Government would with the presentation to it of such resolutions support legislation to that effect. On the basis of these assurances and with resolutions of the municipalities in its possession, the Commission acquired certain rights of way and made other expenditures in connection with the railway out of funds held by it under the terms of the Power Commission Act. The expenditures so made to October 31st, 1920, amounted as before stated to \$683,286.74. On October 31st, 1920, bonds of six municipalities to the amount of \$5,109,573 stood deposited with the Commission under the terms of the Hydro Radial Act but no bonds had been issued by the Commission neither had the Province entered into any guarantees in respect of the line. The \$683,286.74 expended by the Commission upon the line can, however, fairly be said to be part of the funds advanced by the Province to the Commission under appropriations



made for the purposes of the different power systems and undertakings operated and controlled by the Commission.

"Re Toronto and Eastern Railway .....	\$43,946 40
St. Catharines & Niagara Falls Railway .....	25,984 29
Hamilton, Galt, Elmira & Guelph Railway .....	36,482 06
Hamilton, Brantford, Woodstock & London Railway .....	17,617 34

Total .....	\$124,087 09
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"The above amounts expended by the Commission in respect of such Railways, were made out of funds held by it for the benefit of power undertakings and without any apparent legal authority. No bonds have been issued by the Commission in respect of such railways or guarantees given by the Province.

"On the Toronto and Eastern line the municipalities interested have passed by-laws and certain, but not all of the agreements with the Commission have been executed.

"On the St. Catharines and Niagara Falls line by-laws have not been submitted to or voted upon by the interested municipalities.

"On the Hamilton-Galt-Elmira and Guelph line by-laws were carried by certain but not all of the municipalities interested and no agreements have been executed between any of the municipalities and the Commission.

"On the Hamilton-Brantford-Woodstock and London line by-laws have not been submitted to or voted upon by the municipalities interested.

"Moneys expended by the Commission in respect of valuations have been as follows:—

"Niagara-St. Catharines & Toronto Railway .....	\$1,005 27
Toronto Suburban Railway .....	5,604 86

Total .....	\$6,610 13
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"These expenditures were made out of the general funds of the Commission and there would not appear to be any statutory authority permitting disbursement of the same. No bonds have been issued by the Commission in the connection, neither is the Province under any liability in respect of the undertakings.

"In addition to the amounts mentioned sums expended by the Commission in respect of the Hydro Radial Investigation amounted to October 31st, 1920, to \$44,704.09, which sums the Commission contends are repayable by the Province to it.

Yours truly,

(Sgd.) G. T. Clarkson."

## "EXHIBIT 158

## ELECTRIC RAILWAY CONSTRUCTION.

	To July 6, '20	July 7, '20 to Feb. 15, '21	Total to Feb. 15, 21
<i>Road &amp; Equipment.</i>			
Toronto-Port Credit—Right of Way	588,680 02	40,888 60	629,568 62
Surveys and Investigations	16,493 67	52,778 85	69,272 52
	605,173 69	93,667 45	698,841 14
<i>Port Credit-St. Catharines—Right of way</i>			
Construction Material	34,284 00	29,443 96	63,727 96
Surveys and Investigations	946 21	335,204 36	336,150 57
	44,908 09	39,770 07	84,678 16
	80,138 30	404,418 39	484,556 69
<i>Surveys &amp; Investigations.</i>			
Toronto Eastern Line	25,001 50	25,074 37	50,075 87
St. Catharines-Niagara Falls Line	17,418 86	9,287 82	26,706 68
Hamilton-Galt-Elmira-Guelph Line	25,324 57	13,133 76	38,458 33
Engineers' Tools and Equipment	4,313 74	11 55	4,325 29
	72,058 67	47,507 50	119,566 17
<i>Valuations.</i>			
Niagara-St. Catharines & Toronto Railway	518 11	1,166 64	1,684 75
Toronto Suburban Railway	2,468 42	3,431 47	5,899 89
	2,986 53	4,598 11	7,584 64
TOTAL	760,357 19	550,191 45	1,310,548 64
<i>Summary.</i>			
Expenditures on purchase of Right-of-Way	622,964 02	70,332 56	693,296 58
Construction Material	946 21	335,204 36	336,150 57
Surveys, Investigations & Valuations	136,446 96	144,654 53	281,101 49
TOTAL	760,357 19	550,191 45	1,310,548 64

Certified,

HYDRO ELECTRIC POWER COMMISSION OF ONTARIO.

(Sgd.) "J. U. Gilmour,"

Treasurer."

RECOMMENDATION 5. I STRONGLY RECOMMEND TO THE GOVERNMENT AND THE HYDRO ELECTRIC POWER COMMISSION, THAT WHEN THEY ARE DECIDING THE DATE FOR COMMENCEMENT OF CONSTRUCTION OF RADIAL RAILWAYS, VERY GREAT WEIGHT SHOULD BE GIVEN TO THE PRESENT STATE OF UNEMPLOYMENT. THE GOVERNMENT COULD HELP A GREAT DEAL BY COMMENCING WORK ON SUCH A PUBLIC UTILITY AS RADIAL RAILWAYS, WHEREBY MANY MEN COULD EARN WAGES AND THE GOVERNMENT OBTAIN RETURN IN LABOUR FOR THE MONEY EXPENDED.

It is impossible to urge too strongly the preceding recommendation. The unemployment situation is such as to make it the imperative duty of the Ontario Government to proceed with the construction of useful public utilities, so that citizens can earn wages and give return in useful employment. In my opinion, there is a real opportunity to help the unemployed situation by hastening the construction of this great public enterprise. Great strength is added to this because of the fact, that the Province has embarked on a programme of radial railways, and has already invested much money in the scheme and the proposal, as outlined, will aid in the development of a greater and more prosperous province.

RECOMMENDATION 6. THE HYDRO ELECTRIC POWER COMMISSION SHOULD HAVE, AS A MEMBER, ONE OF THE BEST AND MOST EXPERIENCED RAILWAY MEN IN OPERATING AND TRAFFIC WHO CAN BE FOUND. SUCH A RAILWAY EXPERT WOULD BE OF GREAT ASSISTANCE TO CHIEF ENGINEER GABY, WHOSE DUTIES IN CONNECTION WITH THE POWER PROJECTS ARE ONEROUS NOW, AND UPON WHOM MUCH OF THE WORK CONNECTED WITH RADIALS IS LIKELY TO FALL. LEGISLATION MAY HAVE TO BE PASSED TO INCREASE THE NUMBER OF MEMBERS ON THE COMMISSION, BUT SUCH AN EXPERIENCED RAILWAY AUTHORITY SHOULD BE OBTAINED WITHOUT DELAY AND PLACED IN A POSITION WHERE HE COULD BE OF GREATEST ASSISTANCE TO THE HYDRO ELECTRIC POWER COMMISSION. THIS IS NO REFLECTION UPON ANY OF THE ENGINEERS OF THE HYDRO COMMISSION, BUT A RECOMMENDATION TO ASSIST THE GOVERNMENT AND THE COMMISSION IN A GREAT PUBLIC PROJECT OF MAGNITUDE.

It is obvious that with a proposal from the Hydro Electric Power Commission to embark upon a scheme involving the building or acquiring of 327 miles of electric railways consisting of five divisions, and an ultimate investment in 1935 of approximately \$50,000,000 that one of the members of the Hydro Electric Power Commission should be a railway authority on operation and traffic. The Commission, in my opinion, will be greatly strengthened by the experience and knowledge of such a member.

RECOMMENDATION 7. THE UTMOST CO-OPERATION AND FRANKNESS SHOULD GOVERN THE RELATIONS OF THE HYDRO ELECTRIC POWER COMMISSION WITH THE GOVERNMENT AND THE GOVERNMENT WITH THE HYDRO ELECTRIC POWER COMMISSION, IN THIS GREAT PUBLIC ENTERPRISE OF PUBLICLY OWNED AND OPERATED RADIAL RAILWAYS. THERE CAN BE ONLY ONE PURPOSE AND THAT IS THE PROGRESS AND WELFARE OF THIS GREAT PROVINCE. THE SCHEME OF RADIAL RAILWAYS OUTLINED BEFORE THE ROYAL COMMISSION BY THE HYDRO ELECTRIC POWER COMMISSION, AMPLIFIED AND IMPROVED BY EXPERTS IN EVIDENCE BEFORE THE COMMISSION, WILL BE OF IMMENSE BENEFIT TO THE TERRITORY INVOLVED AND THE PROVINCE AS A WHOLE, AND THERE IS EVERY REASON TO BELIEVE CONFIDENTLY THAT THE RADIALS WILL BE SELF-SUPPORTING, PROVIDING SERVICE AT COST TO THE CITIZENS AND ENSURING A HEALTHY DEVELOPMENT AND PROGRESS FOR ONTARIO WHICH THE LACK OF SUCH TRANSPORTATION FACILITIES WILL SERIOUSLY OBSTRUCT.

IN CONCLUSION OF THE RECOMMENDATIONS: The radial scheme as conceived by the municipalities and the Hydro Electric Power Commission and brought up to date before the Royal Commission, combined with the later estimates and suggestions of Mr. Arnold and his staff, and other experts, provides a good basis for the endorsement of radial railways for Ontario.

The Toronto-St. Catharines Division, as suggested in this Report, is the best division on which to begin construction as early as possible.

There have been changes made in the estimates, due partly to the evolution of the steam railways from private to public ownership. The engineers of the Hydro Commission have taken advantage of changing steam railway ownership to improve the scheme. They will take every opportunity to further strengthen the estimates as a result of the information derived from many experts. There can be no objection to improvements being made.

The Arnold estimates made at a later date when costs were declining, will be of great advantage to the Hydro Engineers.

It is not sound judgment to discourage a great public project because engineers are compelled to change the estimates with changing conditions.

It was suggested during the investigation that endorsement of radial railways by the Province would be a blow to public ownership. That is not a new argument. In my opinion, many great publicly owned enterprises had to face such arguments, and the arguments were silenced by success crowning the efforts of those confident in the principle of public ownership and operation.

Respectfully submitted,

(Sgd.) Fred Bancroft.



## DESCRIPTIONS OF EXTRACTS FROM EVIDENCE WHICH FOLLOW IN THE REPORT.

(1) Engineer Arnold's conclusions in Exhibit 206, where, after a most thorough investigation by himself and his able assistants, he states the scheme is "feasible" and "its success can be reasonably expected."

(2) F. A. Stoffel of the Westinghouse Electric Company, freight traffic expert, with twenty years' railway experience, after examining the freight estimates of the Hydro Engineers strongly supports the estimates.

(3) Engineer Arnold describes in Exhibit 206, the investigation he was asked to make, and in part states, "It was understood that my report should include an unbiased statement of my opinion with regard to the adequacy of the facilities, and the estimated cost thereof and the probable results from operation in the way of revenues obtained and operating expenses incurred."

(4) General Manager Rodger of the Detroit United Railways states the Detroit United Railways paid 8 per cent. on \$15,000,000 worth of common stock and interest charges in 1920.

(5) W. M. Neal, assistant general superintendent for the Ontario District of the Canadian Pacific Railway gives as his opinion that short haul suburban passenger traffic up to 15 miles is not steam railway business.

(6) R. I. Todd describes the arrangements between the city street railway of Indianapolis and interurban railways, whereby radials entering the city over the surface tracks share the revenues with the street railway company.

(7) Exhibit 232. Extract from speech delivered by President R. I. Todd before a meeting of the Central Electric Railway Association at Toledo, February 24th, 1921, in which he discusses the future of electric railways, and outlines the conditions under which "electric railway securities will be among the most stable and solid investments anywhere to be found."

(8) R. C. Rifenberck's application of Inter-State Commerce Commission's accounting system to the Hydro Radial scheme shows, in my opinion, that it is doubtful if any railway in North America could survive the test as applied.

(9) W. F. Tye who joined in an adverse report in 1917 against the Port Credit to St. Catharines electric line, gave evidence stating that the Toronto-Hamilton line was duplication of existing railway lines. In my opinion, he should have obtained more information about the transportation necessities in this territory before reaching this decision, as his evidence indicates:—

## EXTRACTS FROM THE EVIDENCE.

(1) BION J. ARNOLD: "IN CONCLUSION: In conclusion, the result of the Investigation of the proposed system of Hydro Electric Radials herein reported on may be reviewed in brief as follows:

"FIRST: The territory considered from the point of population density, business activity, future business possibilities on account of the availability of Hydro-Electric Power, is second to none in the Province of Ontario and probably in the Dominion of Canada.

"SECOND: On account of the peculiar transportation situation in Toronto, the transportation facilities have not been as fully used as the commercial importance of this metropolitan centre would warrant, and with the particular situation removed by the construction of adequate transportation facilities, patronage of such facilities should grow at a remarkably rapid rate. The furnishing of high grade interurban service throughout the entire territory will greatly add to the facility of all business and industry in this area and should be considered as supplemental rather than antagonistic to the existing steam road service.

"THIRD: The facilities planned by the Hydro Electric Power Commission are in general quite adequate to furnish a very high grade interurban service throughout the territory. The highest type of construction both of roadbed and car equipment has been planned, which naturally results in a comparatively high initial cost, but when the project is viewed with reference to its projected life, it is quite probable that the higher initial expenditure accompanied by the higher grade of service may be rendered, and will in the long run be cheaper, and in any case, from the date of its completion and operation, will provide the territory served with

transportation facilities commensurate with the necessity of the highly developed manufacturing and business territory.

"On account of the uniform high standard of construction and the character of the facilities estimated on, the full benefit of which will not be realized without proper terminal facilities, there have been added to the system as originally planned certain items such as the subway terminal in Toronto and some additional double track, which it is believed will add revenue to an extent that will more than justify the added cost.

"FOURTH: The estimate of the cost and operating expense indicates that from the time when the system as a whole is well under operation, there will be a small surplus after all operating and fixed charges have been met, and that for the later periods the surplus will have a substantial growth.

"FIFTH: The entire electric transportation system and the character and scope of the service which it proposes to furnish are all conceived along broad lines. While the system as a whole cannot be compared with any existing interurban system, combining as it does rapid transit, suburban and interurban passenger features with dispatch and carload freight traffic, yet each of these classes of service has its parallel in existing systems and when an analysis of the estimated operating results of these various classes of service has been made, they lead to the conclusion that the project herein outlined as a whole is FEASIBLE AND THAT IF CONSTRUCTED AND OPERATED UNDER COMPETENT MANAGEMENT WITH THE SUPPORT OF THE COMMUNITIES SERVED, ITS SUCCESS CAN BE REASONABLY EXPECTED."

#### EXTRACT FROM EVIDENCE.

(2) F. H. STOFFEL: "F. H. STOFFEL of the Westinghouse Electric Company, stated in his evidence that he had about 20 years' experience in railway work particularly identified with the freight traffic portion of the business.

For some time past he has been engaged in the work "of dealing with the matter of freight transportation for the purpose of, and in connection with advising of electric railroads as to methods of handling freight and improving their freight business."

PAGE 6635—MR. F. H. STOFFEL.

"Q. If your service is fixed, and certain, and at fixed times, and you are able to make it by reason of the electric operation, does that affect the facility of delivery through the freight house? A. You mean with reference to schedules?

"Q. Yes, with reference to scheduled movements, and with reference to the shippers, the ability to come and get his material rapidly? A. Yes. The fact of getting it ready for delivery early is usually an object to a shipper or receiver of freight, because he is glad to get it on his shelves ready for sale. That is particularly true of merchants who do a smaller business and order stuff by telephone, or order through their jobber, and want it the next day. It is relieving them of the necessity of keeping a large stock on hand, and also having a large investment in stuff that is merely on the shelves, by getting it quickly and getting it where it can be sold, so turning over their investment more times, and therefore are better suited and satisfied.

"Q. I suppose we need scarcely mention the obvious situation in regard to perishable goods, such as fruits, vegetables and that kind of stuff, food products generally. I do not refer to canned or package foodstuff. Speed there is of great importance. A. In the handling of green stuff and fresh fruits and vegetables speed is absolutely essential. The business can hardly be carried on without speed.

"Q. And by speed you mean speed of delivery? A. Speed of delivery.

"Q. And in regard to all that class of traffic what do you say as to an electric road in dealing with that in comparison with the steam railroads? A. The electric road has proved itself absolutely to be able to give the most expedited service of any form of service for that particular class, not only on account of the speed is it more desirable, but also on account of the fact that goods reach destination in far better shape than they do when handled even by their own conveyances, such as trucks, or anything of that kind.

"Q. Then, Mr. Stoffel, having regard to what you have told us, what would you say as to the position of an electric railroad if you had one built, which had exclusively a private



right-of-way, and reached into a central terminal without having to pass over city streets and be subject to no restrictions as to handling freight? When I say subject to no restrictions, I mean subject to no legislative restrictions or municipal ordinances interfering with the handling of it as might be seen fit. What would you say as to the position of a road such as that to obtain freight? A. I should say that the road would be extremely fortunate, and that they would have no trouble at all in getting the freight.

"Q. You have looked over the location here, and have made a study of the plans, profiles and so on that have been put in here in regard to these different roads?

PAGE 6637.

"A. Yes, sir.

PAGE 6638.

"Q. The Toronto-Eastern, running out from Toronto about 40 miles to the east to Bowmanville; the Toronto & St. Catharines, running from here to St. Catharines, through Hamilton, about 70 odd miles; the proposed acquisition of the existing road, the Niagara Central, which touches Port Colborne, and through to Niagara Falls with the other branches it has, goes to Welland and other places mentioned, and also the proposed Hamilton-Galt and Elmira speaking of that road, and leaving out for the moment any reference to the Toronto Suburban Line—that is the one that runs from Toronto to Guelph, the proposed acquisition of that line—what do you say as to the facilities there proposed having regard to freight business? A. I believe that the plans which I have seen and the proposed connecting links to make up the unified system are exceedingly feasible and would prove exceedingly profitable.

"Q. When you say exceedingly profitable. . . ? A. I am speaking now from a freight standpoint. From a freight standpoint I think a reasonable return on the freight operating investment would result.

PAGE 6640.

"Q. Is there any other which strikes you that would be at all comparable? A. No, I don't believe there is any other I know of, in fact, most of these roads over there, electric lines, were constructed for passenger business, and they have hardly begun to go into the freight, and so they are not comparable with the proposed plans which you have for the proposed electric operation here.

"Q. I was having regard not so much to their original purposes and the method in which they operate as to the facilities which they have? A. There are none with facilities such as you propose at all, nor with the physical conditions which you propose.

"Q. Then Mr. Stoffel, did you make any examination into the estimates that were made of freight traffic for these different lines? A. Yes, sir.

PAGES 6641-2.

"Q. Taking for instance, in the first instance, the Toronto and Eastern, that being the most easterly road, you observe there that the estimate was made upon a basis of about three tons per head of the population and that resulted in an estimated earning in 1925, which is put down as about the first year of operation, of about \$5,100 revenue per mile of route—that is per route mile, not per single track mile, so as to avoid that confusion. Speaking of that, and from the examination you made into it, what would you say as to that as a freight estimate, an estimate of probable freight had you been asked to make one? A. I would think that was very conservative.

"Q. I might ask you there in regard to making an estimate and relating it to the population. Is that a method which you yourself pursue? A. I have followed that to some extent.

"Q. Then, the Toronto-St. Catharines is the next one, that for 1925 has a revenue which, taking it on the basis of the route mile is placed at \$19,000 approximately, \$19,030 is the figure it works out at; what do you say as to that, as to earnings per mile of route situated as that is, between certain points? A. Taken in connection with their possibilities of inter-line traffic with connections, I think that is very conservative.

PAGE 6643.

"Q. So that so far as comparing it on a basis of a road doing a real freight business—I am not speaking now of an electric line which is largely passenger and its freight is inci-



dental, the earning of \$19,000 per mile does not strike a railroad man as being out of line so far as that is concerned? A. No, that is very low.

"Q. Then, the Hamilton-Galt-Elmira, that line, or rather route, which you observed, did you notice and consider the populations that were there situate? A. Yes.

"Q. And did you examine the survey that had been made of freight traffic for that proposed line? A. I did.

"Q. What do you say as to the estimate there? Which works out about in 1925 at \$6,480—call it \$6,500 a mile for the total 70 miles of route? A. I think that is very reasonable.  
PAGE 6644.

"Q. Then the Niagara-Central is already an operating road. Did you examine the figures and the estimates that were made in regard to that? A. I did.

"Q. What do you say as to that, with the new facility and the interline business, which is projected—what do you say as to the freight estimate made and which you examined on that road, which as you remember, works out about \$10,000 per mile. A. I should think that with the unified system your operations would be increased and the revenues correspondingly.

#### EXTRACT FROM THE EVIDENCE.

(3) BION J. ARNOLD: "I beg leave to submit herewith my report on proposed Hydro Electric Radial Railways. This report has been made pursuant to your request for an investigation, on my part, of the lines and routes which it has been proposed that your Commission construct. It was understood that my report should include an unbiased statement of my opinion with regard to the adequacy of the facilities, and the estimated cost thereof and the probable results from operation in the way of revenues obtained and operating expenses incurred.

"In carrying on the study for and working out the details of this report, I have been assisted by members of my regular engineering staff who are accustomed to handle reports of this nature. Our work has included inspection trips covering the territory to be served and of the lines now operating which it is proposed to include in the system.

"In connection with our investigation we have been supplied by your Commission with full information, including plans and estimates, relating to the facilities proposed and a large amount of general information with regard to the territory. With this information we have made independent studies of the probable traffic revenue and operating expense of the system, basing our judgment in respect to these matters upon such experience and data as have come to our attention through our engineering experience of the past twenty-five years.

"It has been found, as would naturally be expected, that there are, in matters of detail, differences between the findings herein contained and the estimates that have been prepared by your engineers. This is not surprising, since different engineers must bring to the consideration of a given problem the results of their own experience, and at many points in the detailed estimates, matters must be decided upon the judgment of those preparing the estimates. Such differences of experience and judgment will, necessarily, be reflected in the final estimates, which, although they may lead to the same general conclusion with regard to the feasibility of a given project, may vary in certain details.

"The general tendency in this report has been to prepare the estimates on a conservative basis. In studying the situation certain data have been considered, and certain conditions have been observed, which would indicate that some features of the situation would work out with an unusual advantage to an electric transportation system of the type proposed and it is possible that in working up our estimates we have not given full weight to these conditions which appear to exist, but have given more weight to our experience with similar systems in other territories which may not possess these particular local advantages. To whatever extent this may be true, our estimates would naturally fall below those of your engineers whose more intimate knowledge of the territory and conditions lead them to estimates which may more nearly represent the actual performance of this system, than do ours. Nevertheless, we are bound to submit our report in accordance with the situation as it appeals to our judgment and experience."

## EXTRACT FROM EVIDENCE.

(4) W. S. RODGER: PAGE 7609. "COMMISSIONER BANCROFT: Q. Do you know what your total payroll was in the year 1920? A. No, sir; I have not figured it.

"Q. You paid 8% did you not, on \$15,000,000? A. Yes.

"Q. \$1,200,000? A. Yes.

"Q. That is on the common stock? A. Yes.

"Q. And you paid all your interest charges, your interest on your bonds? A. Yes.

"Q. You are speaking about a reduction in the cost of operation? A. Yes.

"Q. Do you think it is fair to talk about a reduction in wages while you are paying 8% on \$15,000,000 on common stock? A. That is hardly a question for me to answer in connection with the management of the road, but aside from that I think those who put money into the property are entitled to a return of more than 4¼% average for 20 years. I do not think you and I would care to invest our money at that rate nowadays.

"Q. But supposing you took the wages of these men for the last twenty years, you would find they were pretty low, too? A. No. the Detroit United has had the reputation of paying the conductors and motormen at least as high if not the highest wages paid in any city in the United States and operating at as low a fare as any city. We have never been over the present fare of six cents and have had that only since last June, and as a matter of fact we do not get six cents because about 82% of the passengers buy tickets that cost them 5½ cents or 9 for 50 cents. Wages in all classes of labour in our territory have had reductions."

## EXTRACT FROM EVIDENCE (5) W. M. NEAL. PAGE 2005-6.

"Q. Now please do not take the question I am about to put to you offensively, because I assure you I have no intention of appearing offensive. But have you the tradition of the steam railroad man that seems in Canada, at any rate, to dislike suburban service? A. I would not say that.

"Q. It seems—this is merely an inference largely of my own but it has been obtained from having observed a few controversies in the Railway Board—that around Toronto your sister or rival road, the Grand Trunk, seems to be especially opposed to suburban service, and the C. P. R. avoids getting into anything of the kind. Is that really the steam railroad man's idea? A. Strictly speaking, the short haul suburban traffic within a radius of five, ten or fifteen miles, it has been said, is not railroad business, and I do not think it is.

"Q. And I suppose then that so far as that is concerned you have placed the figures—what number of miles? A. Five, ten or fifteen.

"Q. Yes? A. That business is practically suburban street car traffic.

"Q. And you concur in the view that that is not steam railroad business? A. Yes.

"Q. You would like to leave that to some electric or other kind of line which could give that service more satisfactorily at any rate than you think steam roads can handle it? A. (No answer.)"

## EXTRACT FROM EVIDENCE. MR. R. I. TODD. PAGE 11822.

"(6) So since 1916 we have been hauling live stock but it has been at the sufferance of the City.

"Q. That is what I have in mind? A. The Farmers' Association there went to the Legislature to make it a sure proposition, and had this bill put through in an emergency session last summer.

"Q. Any by-laws of the City of Indianapolis to the contrary notwithstanding? A. That is the idea.

"MR. HELLMUTH. Q. At all events you do haul right through? A. Yes sir.

"Q. But that does not apply to the closed freight car? A. Oh, no.

"Q. You have been doing that? A. Yes, sir.

"Q. There is no ordinance in Indianapolis that prevents you taking a freight car through the streets? A. No.

"COMMISSIONER BANCROFT: "Q. You have to come over the city surface lines? A. Yes.



"MR. HELLMUTH: Q. You are the owners of those lines, your system owns them? A. We are two separate companies.

"Q. But you have a controlling interest? A. The city company controls the city tracks and the interurban is operated on the same basis; every interurban coming into Indianapolis operates on the same basis.

"Q. But the two systems are controlled practically by the same interests? A. The interests are very largely the same.

"Q. They are intertwined? A. Yes.

"Q. And neither system is working to prevent the other system from earning any money that it can? A. No, there is a mutuality of interest.

"Q. I was going to ask you—Mr. Commissioner Bancroft put it into my mind that I was going to come to it—when you are coming in over the city streets and strike the city limits, do you as a matter at least of bookkeeping, if nothing else, pay to the City anything for running your interurban cars over there? A. Absolutely.

"Q. So that you have to make a payment or compensation for that. How is that arranged? Is that on a car mile basis? A. The passenger business on the basis of three cents for the use of tracks and for power outside the terminal, and one cent for the use of the terminal, and the freight business.

"Q. Let us get the passenger first, three cents and one cent? A. Yes.

"Q. Four cents for every passenger. A. Yes.

"Q. So you pay on the basis in bringing your passengers into the terminal of four cents? A. Yes.

"Q. And that terminal is most advantageously situated in regard to the city? A. One of the best in the United States.

"Q. That is to say, you are taking the passengers to the point to which, if you had your choice, you would take them? A. Within one square of the commercial centre, and half a square of the geographical centre of Indianapolis.

"Q. So your terminal is ideally situated for the purpose of picking up and delivering passengers in Indianapolis? A. Yes.

"Q. And for the right of the interurban road to enter their terminal so far as passengers are concerned, it pays for every passenger it carries inside the city limits four cents; that is three cents for the travel and one cent for the terminal, making four cents? A. Yes."

"(7) EXTRACT FROM EVIDENCE. R. I. TODD. The most important problem before the street and interurban railways at the present time is the restoration of their financial credit with the Bankers and the investing public. Emerging as they now are from a period of depression and financial starvation due to a lack of co-operation and appreciation of their true situation on the part of the public, and, in many cases, a ruinous indifference on the part of federal, state and city authorities, the financial condition of many of these companies is very precarious. Yet, without the financial oxygen, which was so freely administered by the Federal Government to the steam railroads and numerous manufacturing industries during the late world war, the electric railways of the country have, heroically struggled for several years past, for their very existence, all the time faithfully serving the public while their stockholders have suffered heavy and in some cases, irreparable losses.

"If our electric railways have thus shown such staying powers in the midst of what seemed insurmountable obstacles, is it not positive proof that with adequate fares and just regulation they will be able to render such service in the carrying of passengers and freight as will contribute perhaps more than any other one factor to the great upbuilding of our American cities and towns and play a most important part during the present and coming period of reconstruction?

"This fact is recognized by some of the greatest financiers of the country, who have freely expressed the opinion that with proper rates of fare, electric railway securities will be among the most stable and solid investments anywhere to be found and compare favourably with municipal bonds and other first class securities. If this is true, as it undoubtedly is, a great civic and moral responsibility rests upon rate-making bodies everywhere to see that such fares are allowed in the interest and welfare of the great body of the public and the growth and upbuilding of the cities and towns.



"The fare question is one which is now engrossing the most careful attention of the heads of all electric railway companies. If those which are still solvent are not to follow the financial disaster which has befallen hundreds of others, rates must be allowed which will provide a fair return on the investment and afford means for efficient operation and necessary extensions. This must be done whatever the rate plan may be. City and state authorities sometimes fail to recognize this very evident fact, and very recently in Louisville, Ky., the federal court was appealed to on the ground that to require a company to furnish transportation facilities at a loss was confiscation of property. The court recognized the merits of this appeal and promptly permitted the company to charge a rate of 7 cents.

"FEDERAL DECISION ON RATES. Recent federal decisions which make steam railroad passenger and freight rates in the states of Ohio, Indiana and Illinois conform with interstate commerce rates, namely, 3.6c per passenger mile and approximately 40% advance on freight rates, are bound to have a favourable effect upon interurban passenger and freight business either by diversion to the interurban of many interstate passengers or by giving basis for an increase in interurban freight rates and fares, or both. In the readjustment of prices of commodities, in order to get back to normal conditions, it is clearly evident that labour must bear its fair share in the general reduction. An equal distribution of financial burdens is imperative, if we are to reach a sound, economic basis.

"THROUGH PASSENGER AND FREIGHT TRAVEL. A matter calling for our serious consideration is the development and encouragement of through travel over long distances without change of cars. Experience has shown that with proper facilities and publicity such service can be made very popular and profitable. Where such service has once been established, and for one reason or another temporarily discontinued, it has taken great effort to re-establish it. We believe that through fast inter-urban trains are in demand, particularly between points where steam railroad trains are infrequent and unsatisfactory. Excellent through interurban service is now being furnished by some of our member companies. Perhaps the greatest recent development along these lines is that inaugurated by the Interstate Public Service Company of Indiana, which has just added to its equipment a number of handsome and commodious steel passenger cars with trailers which run at frequent intervals between Indianapolis and Louisville.

"No less important from a revenue standpoint is the operation of through freight and express cars which avoid the delay and loss caused by transferring shipments en route.

"Local, freight service should also be improved. If interurban companies are to recoup their passenger losses on account of automobile travel, they will find it imperative to greatly develop their freight business. This fact I think is recognized by all.

"A committee of this association is already considering motor truck competition and will make its report in due time.

"While we are now passing through a period of "hard times" the future is full of promise. No line of industry has had to bear more burdens during the last few years than the electric railways of this country, and no industries have shown more grit, loyalty and determination in the face of what seemed almost insurmountable obstacles. This gives hope for the future, so much so, that President Gadsden of the American Electric Railway Association in a recent address assured us that:

"With the revenues of electric railways adjusted so as to cover the cost of operation and provide an adequate return upon investment at all times, the credit of electric railways, provided we have proper financial structures, will rank next to municipal securities."

"Extracted from Electric Railway Journal.  
March 5th, 1921, page 445."

(8) EXTRACT FROM EVIDENCE. R. C. RIFENBERICK. PAGE 11622.

"Q. Applying your system of cost and everything else, is there any road in the United States any place, a steam road or anything else, that would come out with a surplus?

"A. Are you talking of steam roads?

"Q. I am talking of steam roads, too. Applying this system of testing them out as to whether they are financially successful is there an interurban road or steam road in Canada or the United States that would survive this test?

"A. The Detroit, Munroe & Toledo in 1919 survived it.

"Q. Do you know any other case that would survive it?

"A. They will, if they get the proper return.

"Q. But do you know any other case that will survive this test of yours that you have applied here?

"A. None of these roads I have tested out—I will be glad to test out any road on that.

"Q. Would you tell me of any steam road?

"A. I am not now familiar with steam road operation.

"Q. Can you tell me one road that would survive this test, any road in operation at the present time?

"A. I do not think there is any road in the United States that would survive any reasonable test today at the rates they have been permitted to charge. Electric railways in the United States are in a very precarious condition and have been for a number of years.

"MR. MCKAY: Steam roads are not better. The Pennsylvania Railroad would not survive this test, or the New York Central. I doubt if there is one except the D.L. & W. and I do not think it would."

(9) EXTRACT FROM EVIDENCE. W. F. TYE. PAGE 1815-6.

"Q. What do you think of the point of view that may be advanced, that it may be duplication of track, but it is not a duplication of service, building an electric line from Toronto to Hamilton, say?

"A. I do not understand where the distinction could come in.

"Q. You mean it would be a duplication of service, too?

"A. I mean there is a duplication of railways, and they both handle passengers and freight; I am anxious to answer your question, but I do not get the distinction.

"Q. Do you mean both would be competing in all the service that is rendered at present?  
A. Yes.

"Q. What service is there on the steam roads from Toronto to Hamilton that an electric line would duplicate if it was built?

"A. The hauling of passengers from Toronto to Hamilton.

"Q. What service is given on the steam road from Toronto to Hamilton?

"A. The Grand Trunk, I think, runs about nine trains a day.

"Q. Do you know what time they go?

"A. No; I have not had occasion—always when I travel from Toronto to Hamilton I go over the Canadian Pacific, because I get there so much quicker.

"Q. Did you ever stop between Toronto and Hamilton on the Canadian Pacific?

"A. I never did.

"Q. Did you ever stop at all on your travels between Toronto and Hamilton?

"A. In getting off the trains?

"Q. Yes?

"A. I have been in Oakville and places like that. When I say that I always go by the Canadian Pacific, I mean to say I generally go by the Canadian Pacific.

"Q. Have you any idea what time the train—I suppose you know there is only one steam service that stops between Toronto and Hamilton?

"A. Yes.

"Q. Only one line double track, one service?

"A. Only the Grand Trunk.

"Q. Do you know what time they leave in the morning?

"A. No.

"Q. Do you know what time people in Bronte can get away to Toronto.

"A. No.

"Q. Do you know what time they leave at night.

"A. No.

"Q. Why do you say there is no public necessity for the building of a radial if you do not know that; what led you to come to that conclusion?

"A. I come to that conclusion—if there is business there that the railroads will handle it. that the railroads will handle that particular business; I said also before that if the electric road, and I was particular to say that if the electric road gave better service it would get the business."

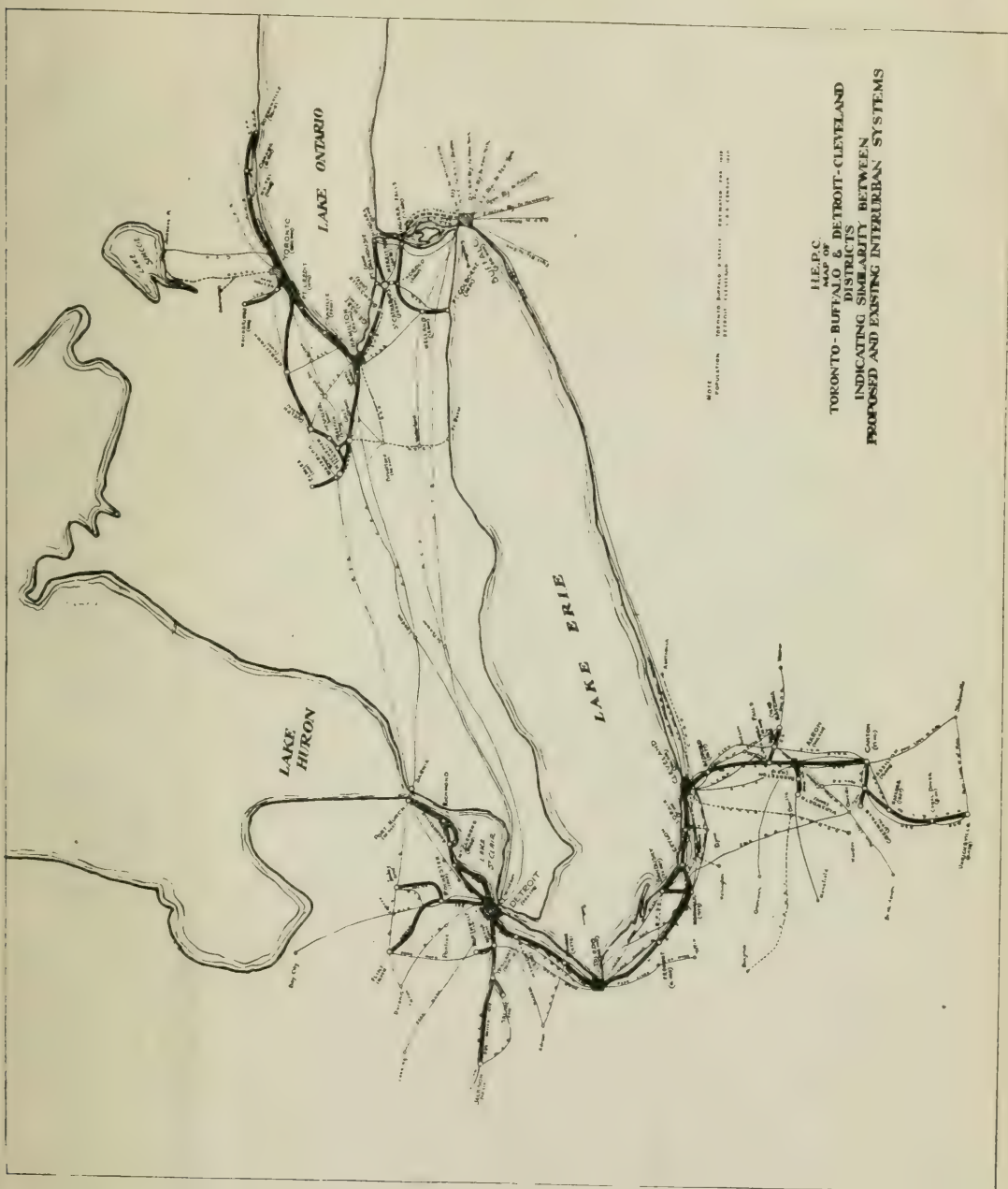
APPENDICES.

1. Royal Commission with Government statement of July 6th, 1920 attached. (The original is an appendix to the Majority Report.)
2. Map showing comparison between Detroit-Cleveland combination and Hydro System and International Railway Line to Buffalo.
3. "Statement showing summary of estimated cost of acquiring and constructing the proposed Hydro Radials" by Price Waterhouse & Company.
4. "Report of the Federal Electric Railways Commission" of the United States (Report is Appendix No. 9 to the Majority Report).
5. Attention is drawn particularly to Exhibits mentioned and quoted in this Report.

ALL OF WHICH IS RESPECTFULLY SUBMITTED.

(Signed) Fred Bancroft.





STATEMENT SHOWING SUMMARY OF ESTIMATED COST OF ACQUIRING AND  
CONSTRUCTING THE PROPOSED HYDRO ELECTRIC RADIALS PREPARED  
FROM ESTIMATES SUPPLIED THE RADIAL RAILWAY COMMISSION  
BY THE HYDRO ELECTRIC POWER COMMISSION.

Period Ending	Toronto, Port Credit, Hamil- ton, St. Cath- arines Line	Toronto Eastern Line	Hamilton Guelph, & Elmira Line	Toronto Suburban Line	Niagara Central Line	Total	Total Estimated Cost of Acquiring and Con- structing the Proposed Hydro Electric Radials, up to and including		
							1925 (1)	1930 (2)	1935 (3)
1921	\$								
No. 1	1925	20,603,953 30	9,164,132 35	7,192,895 00	2,915,900 00	4,363,830 00	7,279,730 00		
No. 2	1930	726,600 00	933,568 65	207,000 00	675,874 00	727,500 00	38,364,354 65		
No. 3	1935	1,262,100 00	903,702 00	300,800 00	178,400 00	678,500 00	2,724,068 65	\$48,368,153 30	
							2,475,602 00		
TOTAL	.....	\$22,592,653 30	11,001,403 00	7,709,695 00	3,770,174 00	5,769,830 00	50,843,755 30		\$50,843,755 30

## NOTE:

- 1.—Items marked No. 1 represent estimated cost for the period ending 1924—1925 and 1926, which for the purposes of this statement have been treated as "1925."
- 2.—Items marked No. 2 represent estimated cost for the period ending 1929—1930 and 1931, which for the purposes of this statement have been treated as "1930."
- 3.—Items marked No. 3 represent estimated cost for the period ending 1934 and 1935, which for the purposes of this statement have been treated as "1935".

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